RECLAMATION

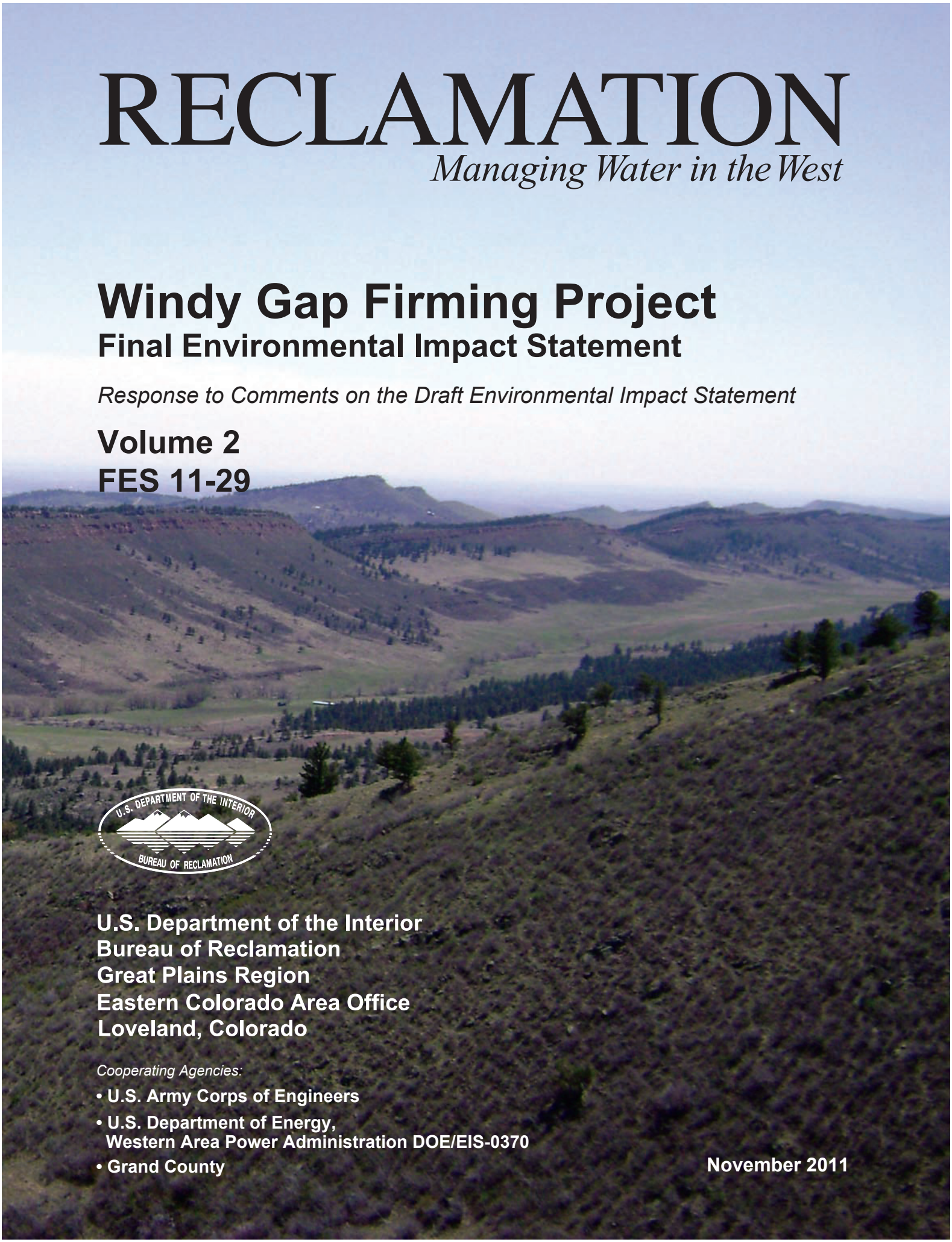
Managing Water in the West

Windy Gap Firming Project

Final Environmental Impact Statement

Response to Comments on the Draft Environmental Impact Statement

Volume 2
FES 11-29



U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Eastern Colorado Area Office
Loveland, Colorado

Cooperating Agencies:

- **U.S. Army Corps of Engineers**
- **U.S. Department of Energy, Western Area Power Administration DOE/EIS-0370**
- **Grand County**

November 2011

Windy Gap Firming Project

Volume 2
Appendix F to FEIS

Response to Comments on the Draft Environmental Impact Statement

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Introduction

Completion of the Draft EIS was announced in the Federal Register (73 FR 50999) and made available to the public for a 60-day comment period from August 29, 2008 to October 28, 2008. Requests were made to extend the 60-day comment period and one was granted until December 29, 2008, providing a few days more than 120 in total. During that time, Reclamation received 1,150 letters and comment forms, and recorded oral and written statements made at two public hearings. Public hearings were held on October 7, 2008 in Loveland, Colorado and October 9, 2008 in Granby, Colorado. Written and oral comments were received from 65 government agencies and officials, 18 organizations, 44 businesses, and 1,026 individuals. Of the comments received, 714 were standardized form letters received from individuals. Each letter, email, or recorded public hearing comment was given a unique document number. All of the comment material was systematically reviewed for content, organized into topics, and responses were developed for substantive comments. Responses to comments are organized by the following sections:

- Response to Comments by Cooperating Agencies
- Response to Comments by Government Agencies and Elected Officials
- Response to Comments by Organizations, Environmental Groups, and Local Businesses
- Response to Comments by Individuals
- Response to Form Comment Letters

Comments received from cooperating agencies; government agencies and elected officials; and organizations, environmental groups, and businesses were reproduced and are included in this document. Each of the unique comments from these entities was given a number with a corresponding response from Reclamation.

Numerous individual comments provided information that:

- Questioned the accuracy of the information in the document;
- Questioned the adequacy of the environmental analysis;
- Proposed other alternatives;
- Suggested the need for changes in the Draft EIS or revisions to one of the alternatives considered in detail; or
- Provided new or additional information relevant to the analysis.

Comments from individuals were categorized into several main topics. An alphabetical list of commenters and the impact topic associated with each comment is summarized beginning on page 593. Because of the number of comments and to reduce repetition, responses to individual comments were grouped by topic with corresponding responses. Many of the comments expressed by individuals also were made by government agencies and organizations; therefore, additional information on these topics can be found by reviewing the responses to comments from these entities. Where appropriate, the text of the Final EIS was revised and the section where the change was made is noted in the response to comments.

All of the original comments on the Draft EIS that Reclamation received are available for public inspection at the Reclamation address listed in the abstract at the front of the Final EIS and on

Reclamation's website at: http://www.usbr.gov/gp/nepa/quarterly.cfm#ecao. Reclamation appreciates the public's interest in the proposed project and their participation in the EIS process.

Legal Issues

Reclamation received comments on the Draft EIS that questioned the proposed action's consistency with existing legislation (e.g., Senate Document 80, Section 14 of the Reclamation Act of 1939, the Reclamation Act of 1902); water rights decrees; and other agreements enacted to apportion and protect water resources in the upper Colorado River basin. In response to these comments, we note that it is Reclamation's responsibility to determine whether or not a proposed action is consistent with Reclamation's authorizations for operation of an existing project and whether or not a proposed project can be implemented consistent with those authorities. To address these concerns, Reclamation has added text to Section 1.10.2 of the EIS to clarify our position and the process that Reclamation will follow to assure that the proposed action is consistent with existing Reclamation authorities for the Colorado-Big Thompson Project.

Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract.

Response to Comments by Cooperating Agencies

Cooperating agencies for the WGFP were the U.S. Army Corps of Engineers (Corps), Western Area Power Administration (Western), and Grand County. The Corps and Western provided information needed for preparation of the EIS, but had no additional comments on the Draft EIS. Grand County provided a number of comments on the Draft EIS; as shown below with Reclamation's corresponding responses.

Grand County Letters and Responses

Com-ment	Letter #1075	Response

WGFP 1075

SULLIVAN GREEN SEAVY LLC

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December 29, 2008

VIA EMAIL: **WTULLY@gp.usbr.gov**
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U.S. Army Corps of Engineers
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Littleton, CO 80128-6901

Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project
Grand County Cooperating Agency Comments:
Windy Gap Firming Project Draft Environmental Impact Statement

Gentlemen:

This letter was prepared on behalf of our client, Grand County, acting in its capacity as a cooperating agency under the National Environmental Policy Act ("NEPA") for the Windy Gap Firming Project ("WGFP") Draft Environmental Impact Statement dated August 2008 ("DEIS"). This letter synthesizes comments prepared by Lurline Underbrink Curran and Katherine Morris, Grand County; Jeff Clark, Bishop Brogden; Lane Wyatt, Wyatt and Associates; Jean Townsend, Coley/Forrest, Tom Cope and Robert Tuchman, Holme Roberts & Owen LLP; Dave Taussig, White and Jankowski; and Barbara Green, Sullivan Green Seavy LLC. This letter also incorporates by reference all written comments previously submitted by or on behalf of Grand County during the WGFP EIS process, all of which should be included in the administrative record. Such comments include those in the letters listed in Exhibit A, as well as in our letter to you dated March 31, 2008 ("PDEIS Comments"), concerning the WGFP Preliminary Draft Environmental Impact Statement ("PDEIS").

Grand County continues to be concerned that the DEIS, like the PDEIS, fails to satisfy NEPA's fundamental requirement that an environmental impact statement ("EIS") "foster both informed decision-making and informed public participation." *See Colorado Environmental Coalition v. Dombeck,* 185 F.3d 1162, 1172 (10th Cir. 1999); *accord*

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1	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 2 *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). None of our concerns with the DEIS is new. The most serious concern continues to be that the DEIS fails to use *existing* (actual) hydrologic conditions against which to measure the impacts of the Windy Gap Firming Project. The Windy Gap Reservoir stream depletions used in the DEIS to describe "existing" stream conditions are over three times greater than actual depletions. Consequently, the percentage of change in depletions at the Windy Gap Reservoir as presented in the DEIS for each alternative are much smaller than the percentage of change in depletions that actually will occur. The DEIS's failure to adequately describe the significance of new stream depletions calls into question all of the analysis of impacts to the aquatic environment likely to occur in the Colorado River. Thus, the DEIS is fatally flawed. This flaw is discussed in more detail, below. **General Comments** **1. The Analysis of Impacts Caused by Hydrologic Modifications is Fatally Flawed** Some of the most significant impacts to Grand County result from hydrologic changes associated with flow depletions. The analysis of hydrologic conditions in the DEIS must document changes in magnitude, frequency, duration, timing, and rate of change before the impacts of flow depletions on the aquatic environment can be adequately understood. *See* B.D. Richter, J.V. Baumgartner, J. Powell and D.P. Braun, *A Method for Assessing Hydrologic Alteration within Ecosystems,* Conservation Biology 10(4) (1996). NEPA requires EISs to contain high quality information and accurate scientific analysis. 40 C.F.R. § 1500.1(b); *see also id.* §1502.24. When relevant information is incomplete or unavailable except at an exorbitant cost, the EIS must disclose that the information is incomplete or unavailable and discuss its significance. *Id.* § 1502.22. To the extent that information on actual impacts to the Upper Colorado River Basin from the existing Windy Gap Project is available or readily obtainable, it should be used in preference to predicted impacts from modeling. Because Windy Gap diversions have occurred primarily in May and June, and only in specific years, the analysis should focus on actual stream conditions when the Windy Gap Project actually operated. An understanding of the actual impacts of the Windy Gap Project requires at a minimum a comparison of pre-Windy Gap Project conditions with *existing* conditions. Only then could predictions of future conditions be potentially reliable. Moreover, it is important to recognize that all models have limitations that information on actual impacts does not: I sometimes think we place too much faith in models -- computer programs, or similar patterns -- rather than	1. The EIS was prepared consistent with guidance from the Council on Environmental Quality implementing the procedural provisions of the NEPA and Reclamation's guidance on preparation of NEPA documents. The effects of the proposed action and alternatives were developed by comparing each alternative to the No Action alternative and to existing conditions. Effects on flows due to the alternatives, including the No Action alternative, were based on a comparison with modeled existing conditions that reflect the existing Windy Gap Project and that are indicative of the current administration of the river, demands, infrastructure, and operations. This process is explained in Section 7.1 of the WGFP Water Resources Technical Report (ERO and Boyle 2007).

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1	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 3 walking the ground, looking, seeing, feeling. Models, rather than improving thought, often impose a barrier to thought. We get so wrapped up in our analogue we forget that *it is reality we seek to describe.* *Utahans for Better Transportation v. U.S. Department of Transportation*, 180 F. Supp. 2d 1286, 1290 (D. Utah 2001) (emphasis added). There are several problems with the way that the analysis of hydrologic impacts has been approached. A discussion of some of the key problems follows. For a more thorough discussion of problems with the model *see Report on Windy Gap Firming Project Hydrology Technical Report* by Bishop-Brogden Associates ("*BBA Report*"), attached to this letter as Exhibit B, and *Memo on Windy Gap Firming Project DEIS Aquatics Resources Technical Report* by Lane Wyatt ("*Wyatt Memorandum*"), attached to this letter as Exhibit C.	
2	1.1 **The significance of hydrologic modifications is under-reported and therefore, the accuracy of the impact analysis is called into question.** a. <u>The amount of existing diversions are over-reported</u>. The DEIS does not use actual existing diversions to determine baseline conditions, so the "existing" diversions from Windy Gap Reservoir are over-reported. Table 3 on page 22 of the DEIS Water Resources Technical Report states that the existing average diversions at the Windy Gap Reservoir total **11,080** af per year. (See column labeled "Total" and row labeled "Average".) This number is very close to the diversion records maintained by the Office of the State Engineer, so we believe it is reasonably accurate. On Table 3-2 on page 3-9 of the DEIS, however, the "existing" average annual diversions from Windy Gap Reservoir are reported as **36,532** af per year. (See column labeled "Existing Conditions/Average Annual Flow" and row labeled "Windy Gap Diversions.") This is a discrepancy of 25,452 af per year.	2. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 acre-feet per year (AF/yr), which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005 (presented in Table 3 of the Water Resources Technical Report). Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions if the WGFP is constructed. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 of the FEIS on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 (since Granby Reservoir last filled) averaged about 27,450 AF/yr. That average includes 2002 and 2004, when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment.
3	b. <u>The percent increase in diversions over existing conditions is under-reported.</u> Because of the failure to use *actual* existing average annual diversions, the percent increase in diversions at Windy Gap for all alternatives is *under-reported*. For example, Table 3-2 calculates the percent difference between "existing conditions" for Windy Gap diversions and Windy Gap diversions for each alternative. For the Proposed Action, Table 3-2 reports that the average annual Windy Gap diversions will be 46,084 af. (See column labeled "Alternative 2/Avg. Annual Flow" and row labeled "Windy Gap diversions".) This number is compared to "existing" average annual flows of 36,532 af to derive an increase of 9,552 af in average annual diversions, which is a percent difference of **26%**. (*See* column labeled "Alternative 2/Percent Diff" and row labeled "Windy Gap	3. Refer to responses to Comment Nos. 1 and 2 regarding why historical Windy Gap diversions were not used to evaluate the increase in diversions over existing conditions. The comment indicates that the percent increase in diversions compared to existing conditions is underreported; therefore, future depletions under the Proposed Action are underreported. That is incorrect for the following reasons. Impacts would be understated if the difference in Colorado River flows below Windy Gap was 9,552 AF/yr on average, which is the difference in Windy Gap pumping under the Proposed Action (46,084 AF/yr) and existing conditions (36,532 AF). However, the average difference in flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the increase

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		in net depletion to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. The increased net depletion to the Colorado River is much greater than the increase in Windy Gap diversions under the Proposed Action; therefore, potential impacts are not minimized. Pumping Windy Gap water that is later spilled is a re-timing of flows; not a depletion to the river. In other words, a considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water that could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. For example, the net depletion to the Colorado River for the existing conditions scenario is about 17,750 AF (36,530 AF of Windy Gap diversions (Table 3-6) less 18,780 AF of Windy Gap spills (Table 3-5). The net effects of Windy Gap operations also can be summarized by reviewing estimated Windy Gap deliveries through the Adams Tunnel. Average annual Windy Gap pumping under existing conditions is estimated to be 36,532 AF/yr; however, after spills, diversion shrink, carryover shrink, and allocations to Middle Park Water Conservancy District (Middle Park), only 11,500 AF/yr of Windy Gap water is delivered through the Adams Tunnel, as shown in Table 3-6 of the FEIS. The effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources.

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3	diversions".) However, if the 46,084 af of average annual Windy Gap diversions for Alternative 2 is compared to the *actual* existing average annual diversions of **11,080** af, then the increase in diversions is **35,004** af which is a percent difference of over **300%.** Consequently, the significance of the future depletions that will be caused by the Proposed Action is grossly under-reported.	4. Reclamation believes that average annual streamflows below Windy Gap are accurately estimated in the EIS. Refer to responses to Comment Nos. 1 and 2 regarding why historical Windy Gap diversions should not be used to evaluate streamflows below Windy Gap. As stated above, average annual Windy Gap diversions between 1999 and 2008 were 21,951 acre-feet per year to meet the Participants' increasing water demands. Also see response to Comment No. 3 regarding streamflows below Windy Gap and the net depletion to the Colorado River. The average annual flow below Windy Gap is 151,358 AF, which is the difference between 187,889 AF and the existing conditions diversion of 36,532 AF. However, the net depletion to the Colorado River for the existing conditions scenario is about 17,750 AF (36,530 AF of Windy Gap diversions (Table 3-6) less 18,780 AF of Windy Gap spills (Table 3-5). The net depletion is less than the amount diverted because of the Windy Gap spills that would occur under existing conditions. Pumping Windy Gap water that is later spilled is a re-timing of flows; not a depletion to the river.
4	c. The average annual stream flows below Windy Gap for existing conditions is under-reported. Because of the failure to use the lower *actual* existing average annual diversions, the existing average annual stream flows below Windy Gap Reservoir are under-reported. For example, Table 3-2 reports that the Colorado River below Windy Gap Reservoir is **151,358** af under existing conditions. (See column labeled "Existing Conditions/Avg. Annual Flow" and Row labeled "Colorado River below Windy Gap.") This number is simply the difference between 187,889 af at the Colorado River above Windy Gap Reservoir, and the "existing" diversions of 36,532. If, however, the actual existing average annual diversions of 11,080 are used, then the existing average annual flows below Windy Gap Reservoir would actually be **176,809** af.	
5	d. The percent decrease in annual average stream flows over existing conditions below Windy Gap Reservoir is under-reported. Because of the failure to use the *actual* existing average diversions to calculate existing stream flows below Windy Gap Reservoir, the percent change in stream flows below Windy Gap Reservoir that would result from each alternative are incorrect. For the Proposed Action, for example, Table 3-2 reports that flows in the Colorado River below Windy Gap will be **130,075** af. (*See* column labeled "Alternative 2/Avg. Annual Flow" and row labeled "Colorado River below Windy Gap.") This number is compared to "existing" flows below Windy Gap Reservoir of 151,358 af to derive a decrease in average annual flows of **21,283** af which is a percent difference of **14%** (*See* column labeled "Alternative 2/Percent Diff" and row labeled "Colorado River below Windy Gap".) However, if Alternative 2 is compared to the *actual* existing average annual diversions of **11,080** af and the corresponding existing flow of **176,809** af below Windy Gap Reservoir, then the reported 130,074 af flow in the Colorado River below Windy Gap Reservoir for Alternative 2 represents a decrease in average annual flows of **46,734** af, or a decrease in over **26%**. Consequently, the significance of stream flow depletions that will be caused by the Proposed Action is grossly under-reported.	5. Reclamation believes that the percent decrease in average annual streamflows below Windy Gap is accurately estimated in the EIS. Refer to responses to Comment Nos. 1 and 2 regarding why historical Windy Gap diversions should not be used to evaluate streamflows below Windy Gap. Use of the historical average annual Windy Gap diversion of 11,080 AF from 1985 through 2005 does not reflect recent Windy Gap diversions to meet the Participants' water demands. Also see response to Comment No. 3 regarding streamflows below Windy Gap and the net depletion to the Colorado River.
6	e. The analysis of impacts to the aquatic environment cannot be accurate. Because the "existing" diversions are over-reported and the percent decrease in stream flows for each alternative is under-reported, the analysis of the impact of these changes to the aquatic environment, recreation and water and wastewater facilities is called into question	6. See responses to Comment Nos. 2, 3, 4, and 5. The analysis for the aquatic environment used the daily hydrology values and is consistent with CEQ and Reclamation guidance on the preparation of an EIS. See Section 3.9.2.3 of the FEIS.

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7	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 5 1.2 **The model study period is inadequate to evaluate west slope impacts.** A model study period of 1950 to 1996 was used. DEIS at 3-13. This period overstates projected stream flows for the alternatives and therefore understates resulting impacts to the Upper Colorado River Basin. Extending the model study period through approximately 2005 would result in a more accurate representation of water demands, stream flows, reservoir operations, and water administration under drought-year and dry-year conditions, when impacts are more significant. *See* Hydrosphere Resource Consultants, Inc., *Upper Colorado River Basin Study, Phase II* (May 29, 2003) ("UPCO Phase II Report") at 75 (discussing impacts of 2002-2003 drought). The DEIS provides no justification for omitting 2002 from its summary of annual changes in flow for the five driest years. DEIS at 3-17. Additionally, although the Windy Gap water rights might not be in priority during drought years such as 2002, the DEIS provides no justification for ignoring the impact of such conditions when analyzing cumulative effects. *Id.* at 3-14, 3-42.	7. The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (e.g., flow, diversion, evaporation, and precipitation) were readily available through that year and the State's CDSS Model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding associated hydrologic changes and WGFP yields. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling, (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are as follows: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002, and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002 with or without a WGFP reservoir because Windy Gap diversions would be limited by the amount physically and legally available as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield.
8	1.3 **Average annual or monthly flows are not adequate to determine impacts to aquatic environment**. As Grand County has previously pointed out, what is important is not changes in *average* annual or monthly flows or water quality (or predicted water quality on a single day such as July 25), but actual changes in *daily* flows and *daily* water quality, including temperature. Reporting average annual or monthly flows and ignoring other flow factors can mask significant impacts that may occur on a given day or series of days, thereby creating the false impression that environmental impacts are insignificant, because *on average* they appear to be insignificant. The monthly time-step may be reasonable for estimating gross-level changes in yield or reservoir storage, but it is inadequate to address daily fluctuations in river flow, stage, channel width, and other factors that affect the aquatic environment. *See, e.g., id.* at 3-67, Figure 3-29 (exceedances of weekly average temperature standard in Colorado River during July and August 2007).	
9	1.4 **The results of the QUAL2K model are inadequate to describe water quality impacts.** The modeling of water quality impacts by the QUAL2K model are even more problematic. *Id.* at 3-90 to 3-92. Although the DEIS uses disaggregated daily flows for analyzing surface water hydrology, it does not use daily flows for analyzing surface water quality. Instead, conditions on only a single day each year, July 25, were modeled, based on the apparently untested assertion that it represents a worst case analysis. *Id.* at 3-92, 3-141. The DEIS does not adequately explain why, in any given year, a day other than July 25 might not have worse water quality conditions than those modeled for July 25. *See Wyatt Memorandum,* Exhibit C.	
10	**2. Violations of Legal Requirements**	The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950–1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period

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		includes the mid-1950s drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives for both direct effects and cumulative effects because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. The year 2002 is omitted from the summary of annual changes in flow for the five driest years because 2002 was not included in the model study period. Years included in the dry year average were selected from the model study period, which extends from 1950 through 1996. 8. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Granby Reservoir, below Windy Gap, at Hot Sulphur Springs, and near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses were based on daily variations, and were used in resource assessments where the magnitude or value of the resources is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D Model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations.

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10	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 6 Whether an environmental impact is significant depends on both its context and its intensity. 40 C.F.R. § 1508.27. "Intensity" means "severity of impact" and is determined by evaluating a number of factors, including "[w]hether the action threatens a violation of Federal, State, or local law or requirements imposed for protection of the environment." *Id.* § 1508.27(b)(10). Here, the Proposed Action threatens violation of such laws and requirements, thereby increasing the significance of the WGFP's environmental impacts, but the DEIS fails to acknowledge these potential violations.[1] A related requirement is that the environmental consequences section of an EIS must discuss "[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local . . . land use plans, policies, and controls for the area concerned. *Id.* § 1502.16(c); *see also id.* § 1506.2(d). Furthermore, when such laws or requirements are violated, heightened scrutiny of environmental impacts is required, which the DEIS also fails to do. *See Maryland-National Capital Park & Planning Comm'n v. U.S. Postal Service*, 487 F.2d 1029, 1037 (D.C. Cir. 1973) ("When . . . the Federal Government exercises its sovereignty so as to override local zoning protections, NEPA requires more careful scrutiny."). The Proposed Action threatens to violate the following Federal, State, or local laws or requirements (as have operations of the existing Windy Gap Project and the Colorado-Big Thompson Project ("C-BT") in some instances):[2]	Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods with or without the alternatives assessed to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, the No Action Alternative, and each of the EIS alternatives. Because there are no hydrologic impacts due to the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for non-drought conditions. The aquatic habitat analysis used the daily values for hydrology for all alternatives. The daily hydrology and daily habitat analysis accounts for appropriate fluctuations. All data presented in the graphs and tables are generated from those daily analyses. See FEIS Section 3.9.2.3 9. See response to Comment No. 129.
11	2.1 **Senate Document 80.** Requirements of Senate Document 80, including its provisions on "Manner of Operation of Project Facilities and Auxiliary Features" will control WGFP. DEIS at 1-42 to 1-43. Connection of WGFP facilities to C-BT facilities and storage of C-BT water in non-project facilities would require Congress to amend Senate Document 80 because Senate Document 80 does not include Chimney Hollow Reservoir as a C-BT project feature. a. <u>The Bureau of Reclamation's authority is constrained</u>. Senate Document 80 is the legal foundation of the C-BT Project. Senate Document 80 describes C-BT facilities and conditions to protect the beneficiaries of those facilities, including Grand County. Senate Document 80 contains requirements for use of C-BT water by the Municipal Subdistrict as a supplemental supply on the east slope, use of Green Mountain Reservoir for west slope beneficiaries, and provisions that specifically protect the headwaters of the Colorado River system in Grand County. Senate Document 80 is [1] It may be that the applicant intends to comply with all laws and requirements, but the DEIS fails to mention all applicable laws and requirements or the steps that will be taken to ensure compliance. As presented, the Proposed Action would violate several laws and requirements. [2] Grand County has raised many of these issues in prior letters and meetings, but to no avail. Some of these violations may not necessarily involve environmental protection or land use laws or requirements, but are included because they must be addressed before the Bureau could approve the WGFP.	10-14. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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11	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 7 unique. But for the agreement between the east and west slopes contained in Senate Document 80, the project would not have been built. The 10th Circuit has described Senate Document 80 as "The Document, embodying the salient features of the project, [Senate Document 80] was Congressional sanction for a conciliation of conflicting interests of affected water users on both sides of the Rockies." *United States v. Northern Colo. Water Conservancy Dist.*, 608 F.2d 422, 430 (10th Cir. 1979) *citing*, *United States v. Martin*, 267 F.2d 764 (10th Cir. 1959). The Bureau of Reclamation's ("Reclamation") role in operating the C-BT Project is that of "a trustee responsible for the protection of West Slope interests and delivering water to northeastern Colorado." Consolidated Cases Nos. 2782, 5016 and 5017, Supplemental Judgment and Decree, p. 2 dated February 9, 1978; aff'd by *United States v. Northern Colorado Water Conservancy Dist.*, 608 F.2d 422, 429-30 (10th Cirt. 1979). b. Any excess capacity contract that Reclamation enters with the Municipal Subdistrict must comply with Senate Document 80. (1) Reclamation must include terms and conditions in any excess capacity contract to ensure that WGFP operations are consistent with Senate Document 80. Primary purposes of Senate Document 80 that concern Grand County are: (a) Primary Purpose No. 1 "to preserve the vested and future rights in irrigation" (b) Primary Purpose No. 2 "to preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and Rocky Mountain National Park" (c) Primary Purpose No. 3 "to preserve the present surface elevations of the water in Grand Lake and to prevent a variation in these elevations greater than their normal fluctuations" (d) Primary Purpose No. 5 "to maintain conditions of river flow for the benefit of domestic and sanitary uses of this water" (2) Senate Document 80 requires that to facilitate compliance with the stipulations in paragraphs (j), (k), and (l) a representative may be selected to represent the interests of Grand County and "will be	

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	recognized as the official spokesman of said interests in all matters dealing with project operations affecting Grand County."	
11	(3) Because the WGFP implicates Senate Document 80, through its use of C-BT facilities, the WGFP "deal[s] with project operations affecting Grand County", Grand County must be consulted regarding any determination on whether a C-BT excess capacity or carriage contract can be issued and must consent to any changes in operations to C-BT facilities contemplated by the WGFP.	
	(4) As Reclamation is aware, similar concerns were expressed by Grand County when Northern was seeking to transfer Operations and Maintenance, including water scheduling from Reclamation to Northern. In his letters dated May 14, June 1, and June 11, 2007 to Eric Wilkerson, Mr. Fred Ore made it clear that any changes in operations would require a "collaborative agreement" among all project beneficiaries due to the unique status of the C-BT Project and the mandates of Senate Document 80. The same rationale applies to the WGFP – Grand County's agreement is required for changes in project operations which includes such a major change in operations that would allow prepositioning.	
12	2.2 **Section 402 of the Federal Water Pollution Control Act ("FWPCA"), 33 U.S.C. § 1342.** Transport of Windy Gap water through Grand Lake is an un-permitted point source discharge of pollutants (including nitrogen, phosphorus, and possibly elevated temperatures) into navigable waters, in violation of the FWPCA.	
13	2.3 **Section 401 of the Federal Water Pollution Control Act ("FWPCA") 33 U.S.C. § 1341.** Section 401 of the FWPCA requires that in connection with issuance of a section 404 permit the State of Colorado certify that the project will not cause violations of State water quality standards. Given the water quality violations that would result from the Proposed Action, a 404 permit could not be issued.	
	2.4 **Water Conservancy Act, Colo. Rev. Stat. § 37-45-118(1)(b)(II).** The Act requires	
14	"Any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado river and its tributaries in Colorado, by any district created under this article, shall be subject to the provision of the Colorado river compact, and the "Boulder Canyon Project	

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14	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 9 Act.' Any such works or facilities shall be designed, constructed and operated in such manner that the present appropriations of water and, in addition thereto, prospective use of water for irrigation and other beneficial consumptive use purposes, including consumptive uses for domestic, mining, and industrial purposes, within the natural basin of the Colorado River in the state of Colorado from which water is exported will not be impaired nor increased in cost at the expense of the water users within the natural basin. The facilities and other means for the accomplishment of said purposes shall be in incorporated in and made a part of any project plans for the exportation of water from said natural basin of Colorado." Each of the alternatives includes new "works or facilities planned and designed for the exportation of water from the Colorado River and its tributaries." Accordingly, facilities and other means to protect the Colorado River basin must be part of the project plan and permit conditions for the WGFP.	15. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).
15	2.5 **Colo. Rev. Stat. § 37-60-122.2.** These provisions require mitigation of impacts to fish and wildlife.	
16	2.6 **Grand County Areas and Activities of State Interest ("1041") Regulations**. A new or amended 1041 permit is required owing to changes in project participants and operations compared to the Windy Gap Project as originally permitted. Reclamation, however, has stated in the past that a new or amended 1041 permit may not be required for the WGFP and the DEIS continues to state that a 1041 permit will be required only if there is construction of facilities in Grand County.	16. There are ongoing discussions between Grand County and the Subdistrict on the need for a new or modification of the existing Windy Gap 1041 permit. The EIS provides an estimation of the anticipated direct and cumulative effects of the proposed action based on available information. However, resolution of this issue is not required for completion of the NEPA process or issuance of a Record of Decision. Additional discussion on this issue was added to Section 1.10.4 of the FEIS.
17	2.7 **Reclamation Project Act of 1939, 43 U.S.C. § 389.** Section 14 of the Reclamation Project Act of 1939 requires a determination that a contract would be in the best interest of the United States and the project. DEIS at 1-43.	
18	2.8 **Reclamation Act of 1902**. Section 8 of Reclamation Act of 1902 requires that the "Secretary of Interior, in carrying out the provision of this Act, shall proceed in conformity with State law" relating to the use water. *California v. US,* 438 US 645 (1978)	17-19. Prior to making a final decision in a Record of Decision (ROD), Reclamation will evaluate the specific authorities through a technical review process. The review will lead to a determination of whether or not the proposed action can be implemented in compliance with Senate Document 80 and other authorities. See added text in Section 1.10.2 of the FEIS.
19	2.9 **Colorado Water Law.** Colorado water law requires a change of the Windy Gap water rights decree from a direct flow right to a storage right. Section 8 of the Reclamation Act of 1902 recognizes Colorado laws on the control, appropriation, use, or distribution of water and requires Reclamation to proceed in conformity with them.	

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19	*See* 43 U.S.C. § 383. Since none of the proposed WGFP east slope reservoirs were covered by the Blue River Decree, a change of C-BT water rights also would be required to store C-BT water in the east slope reservoirs described in the DEIS such as Chimney Hollow.	
20	a. The Expansion of Use Doctrine. To protect water users, Colorado courts read limitations into decrees by implication. One such limitation is that an appropriator may not "**lend, rent**, or **sell** any **excess water** after completing the irrigation of the land for which the water was appropriated." (emphasis added) *Orr v. Arapahoe Water and Sanitation District*, 753 P.2d 1217, 1223 (Colo. 1988). Accordingly, if the original appropriators of the Windy Gap water rights do not have a need for the water, under Colorado law the water must be left in the Colorado River. Pre-positioning will expand the use of the C-BT water rights. Colorado's statute on changes of use does not allow such expansion to the injury of other water rights. C.R.S. § 37-92-305(3) – (4). In *Twin Lakes Reservoir & Canal Co. v. City of Aspen*, 568 P.2d 45, 50 (Colo. 1977) the Colorado Supreme Court said the expanded use doctrine applies to water rights in the exporting basin of a transmountain diversion. The Proposed Alternative cannot be implemented without a change in the water rights decree	21. The comment does not correctly state Colorado law, mischaracterizes the history of the Windy Gap Project, and ignores existing contracts. Colorado's anti-speculation doctrine does not prohibit the transfer of rights to water from one user to another so long as the new user has a need for the water and the limitations inherent in the rights continue to apply. Documents obtained from Grand County's own files indicate that all parties knew at the time of execution of the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project dated April 30, 1980, that Windy Gap Project participants could, at any time, convey a part or all of their rights to Windy Gap Project water to others so long as the new users are within the boundaries of the Subdistrict and are subject to the same rights and duties as the original participants who approved the agreement. West Slope interests agreed to this practice. This understanding is documented in a letter to from John M. Sayre to Kenneth Balcomb dated June 6, 1980, a letter from Kenneth Balcomb to John M. Sayre dated June 13, 1980, and a letter from Gregory J. Hobbs, Jr., to Gerald E. Dahl, dated June 30, 1980. At the time of the letters Mr. Balcomb represented the Colorado River Water Conservation District and Mr. Dahl represented Grand County. Finally, the DEIS, in Table 1-6 on page 1-39, states the number of units in the Windy Gap Project owned or leased by each WGFP participant, except for the Middle Park Water Conservancy District. The Middle Park Water Conservancy District does not own any units in the Windy Gap Project. Its right to water from the project derives from the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project dated April 30, 1980, as amended. Grand County is fully aware that Windy Gap units are permanent allotment contracts for water from the Windy Gap Project issued pursuant to the Water Conservancy Act.
21	b. The Anti-Speculation Doctrine. Originally, the Windy Gap Project had only six participants. Presently thirteen entities are participating in the firming project, most of which are not those original six entities. *See* Exhibit D, *Windy Gap Ownership and Transfer History*. The Municipal Subdistrict proposes to use its Windy Gap water rights, with priority dates of 1968, 1976 and 1980, to serve new demands by cities that were not entitled to Windy Gap units at the time the project was built in 1985, much less when the rights were originally filed upon (and in the case of the City and County of Broomfield, not even in existence). The Municipal Subdistrict's attempt to serve these new municipalities under its 1968 priority violates Colorado's anti-speculation doctrine because the service of water to these new municipalities was not contemplated at the time the Windy Gap appropriations were made. *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 37-40 (Colo. 1996) (applying the anti-speculation doctrine to municipal appropriators). Nor does the DEIS disclose any firm contracts for water service. To add these new municipalities to the Windy Gap system, the Municipal Subdistrict must (1) file for a change of water rights to change the place of use for these water rights for these new entities; or (2) seek a decree with appropriation dates reflecting the time at which it had firm contractual commitments to use the water.	
22	2.10 **Water Supply Act.** The Water Supply Act ("WSA"), 43 U.S.C. §390b(b) provides that storage may be included in any reservoir project surveyed or constructed by the U.S. Army Corps of Engineers ("COE") or Reclamation for anticipated future	22-23. Prior to making a final decision in a Record of Decision (ROD), Reclamation will evaluate the specific authorities through a technical review process. The review will lead to a determination of whether or not the proposed action can be implemented in compliance with Senate Document 80 and other authorities. See discussion text added to Section 1.10.2 of the FEIS.

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22	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 11 demand or need for municipal or industrial purposes. However, Section 390b(d) provides: > Modifications of a reservoir project heretofore authorized, …to include storage as provided in subsection (b) of this section which would seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or which would involve **major structural or operational changes shall be made only upon approval of Congress** as now provided by law. (emphasis added). The D.C. Circuit Court of Appeals concluded that a settlement agreement between COE, Southeastern Power Customers, Inc., a group of Georgia Water Supply providers and the State of Georgia providing for the reallocation of water stored in Lake Lanier to municipal purposes violated the W.S.A. *Southeastern Federal Power Customers v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008). The Court held that the reallocation of Lake Lanier's storage capacity to local consumption constituted a "major operational change" and thus required congressional approval. *Id.* at 1325. *See also* Order and Memorandum of Decision, Dated September 25, 2008, *Lower Arkansas Valley Water Conservancy District v. United States, et.al*, Civil Action No. 07-cv-0224-EWN-MEH, United District Court for the District of Colorado at 38, "*Re Application of City and County of Denver*, 1989 WL 128576, at *5 (D. Colo. Oct 23, 1989) (noting that an application to change a "water right to a different point of diversion, use and place of use" is '[b]y definition . . . a major operational change that may only be made upon congressional approval"). The C-BT project was approved by Congress to bring water from the western slope to lands on the eastern slope greatly in need of "supplemental irrigation" using the facilities in Senate Document 80. Use of C-BT Project facilities for the delivery and storage of (1) Windy Gap municipal supplies and C-BT water rights (2) in a new 90,000 acre foot non-federal Chimney Hollow Reservoir (3) under the guise of prepositioning, all constitutes "major structural and operational change" and thus congressional approval for all of the alternatives that would rely on the C-BT.	
23	2.11 **Warren Act, 43 U.S.C. §§ 523-525**. Warren Act of 1911 does not allow Reclamation to enter into a carriage contract for non-irrigation water. All of the proposed alternatives presented in the DEIS contemplate that there will be an Excess Capacity Contract between Reclamation and the Municipal Subdistrict. The Warren Act allows Reclamation to contract for the use of excess capacity in reclamation project facilities, but places strict limits on this authority. *Id.*, § 523. In particular, "[e]xcess capacity will	

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23	be made available **only for the storage and conveyance of non-project water to be used for *irrigation***…." *Id.* During the 1980's, Reclamation developed principles to govern transfers of project water, including the use of excess capacity in projects owned by the Department of Interior. *See* Department of the Interior, *Principles Governing Voluntary Water Transactions that Involve or Affect Facilities Owned or Operated by the Department of Interior* (Dec. 16, 1988)("*1988 Principles.*") The policies emphasize that transactions must be agreed to among willing parties and must not adversely affect third parties. *Id.*, Preamble, § 3. The transaction must comply with applicable state and federal laws. *Id.*, § 1 In 2001, Reclamation issued a new policy - WTR-P04 - that specifically addresses contracts for excess capacity in reclamation projects. Reclamation Manual, Policy WTR-P04 (Jan. 10, 2001). The policy begins by reaffirming the 1988 Principles. *Id.*, ¶ 1. It also recites the Warren Act restriction that excess capacity is available only for irrigation. *Id.*, § 5.A (citing 43 U.S.C. § 523). . Policy WTR-P04 recites the Warren Act restriction that: "[e]xcess capacity will be made available **only for the storage and conveyance of non-project water to be used for *irrigation***…." *Id.*, § 5.A (citing 43 U.S.C. § 523) (emphasis added). According to these laws and policies, none of the proposed alternatives presented in the DEIS would be lawful because they will convey non-project water for purposes other than irrigation.	
24	**3. Purpose and Need; Range of Alternatives** As Grand County pointed out in its PDEIS Comments, the statement of purpose and need is too narrow, thereby unduly limiting the range of alternatives analyzed. This shortcoming persists in the DEIS, whose narrow range of alternative results in a document that fails to satisfy NEPA's requirement "that agencies take a 'hard look' at environmental consequences . . . ." *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 350 (1989). The DEIS states that the purpose of the WGFP is "to deliver a firm annual yield of about 30,000 af of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project and to provide up to 3,000 af of storage to firm water deliveries for the [Middle Park Water Conservation District]." DEIS at 1-4. The justification for this purpose is the need "to meet a portion of the existing and future demands of the Project Participants." *Id.* The DEIS estimates future water needs of WGFP participants, which will eventually exceed water supplies available to them, due in part, but only in part, to limited historic yields from the Windy Gap Project. *Id.* at 1-20 to 1-40. What emerges from this information, however, is the	24. Reclamation believes that the Purpose and Need statement is reasonable and appropriate. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yield from Participant water rights that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap water represents a source of existing water available to the Participants, but requires additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for other sources of water. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply and will be investigating other sources of water to meet those needs.

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24	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 13 conclusion that even with the WGFP, all the participants are predicted to face significant water shortages in 2050. The total projected water demand for the WGFP participants in 2050 is 251,450 af, with an estimated shortage of 110,688 af, of which 26,138 af[3] would be met by the WGFP (excluding Middle Park Water Conservation District's 429 af of firm yield, since its water demand and shortage are not included in the 2050 totals). *See id.* Table ES-1. WGFP's contribution to meeting participants' 2050 water demand would only amount to 10% of total demand. *See id.* Figure ES-2. The remainder, 84,550 af (34% of total 2050 demand) would have to be met by new water supplies—as yet unidentified—and conservation—as yet unquantified and of doubtful efficacy because it is voluntary. *Id.* Participants' needs, therefore, are not so much to firm Windy Gap Project yields, but to obtain additional water supplies to meet their anticipated needs. *See id.* at 1-37. Moreover, it is apparent that none of the alternatives in the DEIS will accomplish the stated purpose of the WGFP. Taking into account cumulative impacts, the Proposed Action would firm only about 24,000 af of water. DEIS Tables 3-20, 3-21. This is only 80% of the approximately 30,000 af included in the statement of purpose. The situation would be even worse for Middle Park, which would receive a firm yield of only 429 af, compared to the 3,000 af included in the statement of purpose. One reason none of the alternatives analyzed in the DEIS satisfies the purpose and need is that the purpose and need is too narrow. Consideration of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. Because of this, agencies may not define purpose and need "so narrowly that it foreclose[s] a reasonable consideration of alternatives." *Davis v. Mineta*, 302 F.3d at 1118. As Reclamation's NEPA Handbook explains, > This brief statement [of purpose and need] is a critical element that sets the overall direction of the process and serves as an important screening criterion for determining which alternatives are reasonable. All reasonable alternatives examined in detail must meet the defined purpose and need. > A brief background discussion may be included for additional information, as appropriate. . . . This background [3] This actually overstates WGFP's potential contribution to meeting participants' water needs in 2050. Taking into account cumulative effects, the WGFP firm yield is predicted to be only 23,616 af (excluding 429 af for Middle Park). *See* DEIS Tables 3-20, 3-21. This represents only 9.4% of participants' total water demands.	The purpose and need goal of 30,000 AF was based on the number of Windy Gap units that Participants own, storage available in a new reservoir, and estimated Windy Gap diversions. While model results indicated that delivery of a full supply of 30,000 AF may not be feasible under any of the alternatives, the Preferred Alternative would have a firm yield of about 26,500 AF. The WGFP would meet about 2 to 46 percent of the Participants' total water needs.

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24	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 14 discussion should be general and not tied to any specific alternative. Care must be taken to ensure an objective presentation rather than a justification. A purpose and need statement will generally allow a range of reasonable alternatives. If a purpose and need statement appears to allow only one reasonable solution, the statement and the reasons for rejecting other alternatives should be re-examined and confirmed or revised, as appropriate. U.S. Department of the Interior, Bureau of Reclamation, National Environmental Policy Act Handbook 8-5 to 8-6 (Public Review Draft: 2000) ("2000 NEPA Handbook"); *see also* United States Department of the Interior, Bureau of Reclamation, National Environmental Policy Act Handbook (Oct. 1990) 4-3 ("1990 NEPA Handbook"). As a result of the flawed statement of purpose and need in the DEIS, the range of alternatives it analyzes is unreasonably narrow. All alternatives - even the so-called "no action" alternative - rely on construction of one or more reservoirs to store water diverted from the Colorado River. The consequence of this, as the DEIS acknowledges, is that "[a]ll alternatives would result in an increase in water diversions from the Colorado River below the Windy Gap Reservoir." DEIS at 3-55. They are merely variations on the same theme. In addition, the DEIS reports that alternatives were excluded from consideration because Congressional approval would be required. Nevertheless, the Proposed Action would also require Congressional approval. Because of this, there is no way to ensure that the least environmentally damaging alternative will be selected as required under the COE's 404(b)(1) analysis. Finally, the alternatives that are presented do not even make a significant contribution to the water needs used to justify the purpose. On the other hand, a statement of purpose and need such as the following would lead to a broader range of reasonable alternatives, some of which might even be more cost effective than or environmentally preferable to those analyzed in the DEIS: "Meet Participants' existing and future water demands to the extent of 30,000 af per year [or whatever quantity would be appropriate] by measures such as mandatory conservation measures or goals, new sources of water, firming the yield of the Windy Gap Project, and requiring that all Windy Gap water be reused to extinction." The mitigation measures listed below that should have been discussed in the DEIS could serve as alternatives, or parts of alternatives, for analysis.	Reclamation does not believe that the WGFP, as proposed, requires Congressional approval. As previously stated, Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. In addition, the purpose of the WGFP is to correct deficiencies in the Windy Gap Project and better utilize existing decreed absolute water rights, not to develop a new water supply.

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25	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 15 **4. Baseline, Cumulative Effects.** An understanding of baseline conditions in the Upper Colorado River Basin, including those that result from on-going human disturbances, is essential under NEPA. In discussions about the inadequate baseline used to measure impacts in the DEIS, Reclamation has insisted that the word "baseline" is not even mentioned in NEPA. This misses the point. NEPA requires an analysis of existing conditions, whether or not the word "baseline" is used. "Without establishing the baseline conditions which exist [before the Proposed Action occurs], there is simply no way to determine what effect the proposed [action] . . . will have on the environment, and, consequently, no way to comply with NEPA." *Half Moon Bay Fishermans' Mktg Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988). In this case, existing conditions consist of an aquatic environment that has been significantly altered. Not only does the DEIS fail to explain this, but it does not even accurately describe the existing hydrologic conditions. (*See* General Comments Section, above.) The Upper Colorado River Basin has been severely degraded by human activities. On average, an estimated 65% of the water in the Upper Colorado River System is diverted to the east slope—a percentage that will increase to 85% if both the WGFP and Denver Water's Moffat Collection System Project are implemented. Graphs presented in Exhibit B, *BBA Report*, visually demonstrate the reduction in average daily stream flows at Hot Sulphur Springs before and after various water projects came online. As a result of such diversions to the east slope, the following impacts have occurred in Grand County in recent years (many of which constitute violations of Senate Document 80), largely due to C-BT and Windy Gap operations: • reduced water quality in Grand Lake; • insufficient flows for agricultural irrigators to pump water from the Colorado River; • insufficient flows for Hot Sulphur Springs to pump water for its public water system; • insufficient flows to preserve fishing on the Colorado River, despite the instream flow requirements of the June 23, 1980 Memorandum of Understanding; • insufficient flows in late summer to maintain commercial fish ponds on some ranches;	25. Reclamation believes that the description of existing conditions in Chapter 3 of the EIS is an accurate representation of conditions in the study area. The purpose of the EIS is to evaluate and disclose the anticipated effects of the proposed action and reasonable alternatives. The Windy Gap Project that became operational in 1981 is part of the existing environment and not the subject of this EIS. The affected environment Section 3.5 of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Tables 3-1 and 3-20 were added to the Surface Water Hydrology Section 3.5 of the FEIS to provide additional detail on the effect of past and present actions on Colorado River streamflow. Other sections in the EIS provide discussions on the existing condition and status of the various resources as a basis for comparing resource impacts. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make reasonable comparisons of the impacts of each of the alternatives. In addition, the WGFP FEIS fully considered the cumulative impacts of all past, present, and reasonably foreseeable future actions. Hydrologic modeling for the cumulative effects analysis includes all of the effects of these past, present, and future actions. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed using the cumulative effect hydrology, and the cumulative analysis was conducted in the same level of detail as the direct impact of the WGFP.

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25	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 16 • high temperatures in the Colorado River above Williams Fork, resulting in fish mortality; • establishment of the didymo (rock snot) a nonnative algae that creates thick mats of moss that attach to rocks creating nuisances; • reduction in the number of kayaking days; • death of cottonwood trees along the river; • increased nutrient loading and other potential impacts from birds (some nonnative, such as pelicans) attracted to the Windy Gap Reservoir; and • spread of whirling disease. Documentation of these conditions may be found in a number of technical reports, including the UPCO Phase II Report and Coley/Forrest, *Grand County: Its Economy & Water Resources* (July 2007). A more detailed description of past water diversion projects and their resulting impacts (e.g., conditions before and after the C-BT, the Windy Gap Project, and Denver Water's Moffat Collection System project) is necessary to understand how these conditions came about as well as how they can be mitigated. *See Lands Council v. U.S. Forest Service*, 395 F.3d 1019, 1028 (9th Cir. 2004) (holding that EIS for a timber sale "should have provided adequate data of the time, type, place, and scale of past timber harvests and should have explained in sufficient detail how different project plans and harvest methods affected the environment.") As EPA explains: The identification of the effects of past actions is critical to understanding the environmental condition of the area. Knowing whether the resource is healthy, declining, near collapse, or completely devastated is necessary for determining the significance of any added impacts due to the proposed project. The NEPA document should consider how past activities have historically affected and will continue to detrimentally affect the resources of concern.	

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25	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 17 EPA, *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*, EPA 315-R-99-002/May 1999, § 4.3. A significant shortcoming of the DEIS is that it lacks a detailed description of on-going impacts from past water projects. A description of ongoing impacts to natural hydrologic conditions could enable Reclamation to develop a more defensible prediction of the likely effects of the WGFP, as well as improve the analysis of the incremental impacts of the WGFP when added to other past, present, and reasonably foreseeable future actions. Moreover, a more detailed description is especially important here because of the complex interactions among the various diversions from the Colorado River and its tributaries and the real possibility that implementation of the WGFP could be a "tipping point," resulting in disproportionately greater impacts in the river basin than otherwise would result if WGFP depletions did not occur in an already severely degraded stream system. Finally, a more detailed description would reveal that mitigation of many of the impacts associated with the existing Windy Gap Project could be mitigated by the project proponent through modifications to reservoir diversions and pumping schedules and coordination with the Denver Water Board and Reclamation. In Grand County, existing impacts are of two kinds. The first result from permanent features constructed for past projects, such as the Windy Gap Reservoir. The second are more dynamic and result from actions that can be modified, such as the timing and quantity of diversions and of releases from reservoirs. Because existing and future hydrologic conditions—particularly the frequency, duration, and magnitude of stream depletions—are controlled, and can therefore be modified by the Municipal Subdistrict, Reclamation, and the Denver Water Board, hydrologic conditions can form the basis for an adaptive management plan that could significantly mitigate both existing and future impacts for the mutual benefit of all. Adaptive management is discussed below under mitigation. **5. No Action Alternative** Like the PDEIS, the DEIS improperly identifies the No Action Alternative (Alternative 1) as the possible future enlargement of the Ralph Price Reservoir by 13,000 af. DEIS 2-14 to 2-18. The DEIS admits that Alternative 1 "was analyzed along with the action alternatives *to provide a basis for comparison*." *Id.* at 2-14 (emphasis added). As Table 2-6 of the DEIS illustrates, Reclamation uses Alternative 1 to advantage, by making changes in various parameters from the Proposed Action appear insignificant when compared to the changes predicted for Alternative 1. Such an approach is contrary to the purpose behind analyzing a no action alternative:
26		26. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connections to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For Windy Gap and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, No. 3) This also includes foreseeable actions by the participants. It is not Reclamation's responsibility to tell participants what they will do if the proposed project is not approved. For this information, each participant was asked what they would do if the WGFP is not approved and the Windy Gap Project continued operation under existing agreements with Reclamation. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would likely sell their WGFP shares. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlarging Ralph Price Reservoir would acquire all of the regulatory authorizations, it is a reasonable action for the City of Longmont and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts, including increased Windy Gap diversions under the No Action Alternative come from WGFP Participants increasing their deliveries, which they can do today without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative. While Reclamation NEPA policy and guidance uses a comparison of the action alternatives with the No Action Alternative, the FEIS provides data for comparisons of action and no action alternatives with existing conditions.

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26	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 18 > In requiring consideration of a no-action alternative, the Council on Environmental Quality intended that agencies compare the potential impacts of the proposed major federal action to the *known impacts of maintaining the status quo*. . . .In other words, the *current level of activity is used as a benchmark.* *Custer County Action Assn' v. Garvey*, 256 F.3d 1024, 1040 (10th Cir. 2001) (emphasis added). It is true that CEQ guidance states that when "choice of 'no action' by the agency would result in *predictable* actions by others, this consequence of the 'no action' alternative should be included in the analysis." Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, Question 3, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981) (emphasis added). Alternative 1 is not, however, predictable. It is speculative, because there is no assurance that the regulatory authorizations for enlargement of the Ralph Price Reservoir will be received, that Longmont will obtain funding for and actually construct the enlarged reservoir or that water rights will be properly decreed. The environmental impacts of Alternative 1 would need to be analyzed in an EA or EIS. DEIS at 2-17. In addition, a 404 permit from COE and a 1041 permit from Boulder County, as well as county location and extent review and special use review would be required. *Id.* at 2-17, 1-46. Detailed design studies for the enlargement of the Ralph Price Reservoir have not been conducted. *Id.* at 2-17. As a result, specific information on the construction, material requirements, scheduling, and cost is not available. *Id.* "To be a reasonable alternative, it must be non-speculative, and bounded by some notion of feasibility." *Utahans for Better Transportation v. U.S. Department of Transportation*, 305 F.3d 1152, 1172 (10th Cir. 2002) (citations omitted). Alternative 1 fails that test. The No Action Alternative should be maintaining the status quo. If anything, possible enlargement of the Ralph Price Reservoir should be included in the cumulative impact analysis for the no action alternative.	
27	**6. Reliance on Illegal Prepositioning** As Grand County has pointed out repeatedly, prepositioning is illegal, among other reasons, because it requires the C-BT project to be operated in violation of Senate Document 80, and requires changes in C-BT and Windy Gap water rights to allow storage in a non-federal facility on the east slope. *See e.g.,* letter dated March 22, 2004 from the Colorado River Conservation District, Grand County and Northwest Colorado Council of Governments to Richard Aldrich and John Chaffin, a copy of which is attached as Exhibit E. These concerns have never been satisfactorily addressed. The January 2007 personal communication with the Colorado State Engineer, who "indicated	27. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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27	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 19 that the Proposed Action to deliver and store water in Chimney Hollow Reservoir using prepositioning could be administered in compliance with current water right decrees and within the priority system," does not do so. DEIS at 3-7. The question is not whether prepositioning would pose an impediment to administering water rights under Colorado law, but whether prepositioning violates Senate Document 80 and other federal and state law. Grand County continues to believe that it is illegal. The request by Reclamation to the State Engineer was misdirected – a declaratory judgment should be obtained. It has long been the law in Colorado that the courts – not the State Engineer - determine use rights in water. ("**Administrative action**, forbearance of enforcement or **State Engineer acquiescence** in water use practice **does not substitute for judicial determination of use rights**." (emphasis added) *Empire Lodge Homeowners' Ass'n. v. Moyer*, 39 P.3d 1139, 1156-7, (Colo. 2001). Moreover, the statement by the State Engineer is wrong. It is not within Northern's, or the Municipal Subdistrict's, or Reclamation's, or the State Engineer's discretion on whether a change of water rights application must be filed – rather it is a mandatory requirement. Colorado's Supreme Court has told the State Engineer and all water users that "[t]he change of water right and augmentation plan statutes provide that **applications for approval of the water use practices** they encompass **are mandatory, not discretionary**." (emphasis added) *Empire Lodge*, 39 P.3d at 1158. NEPA requires that the lead agency evaluate "all reasonable alternatives." 40 C.F.R. § 1502.14(a). An illegal alternative is not a reasonable alternative. It is only a "phantom alternative." *National Resources Defense Council v. Evans*, 364 F. Supp. 2d 1083, 1116 (N.D. Cal. 2003). Because of the illegality of Alternative 2 and the DEIS's emphasis on it as the Proposed Action, the document fails to inform the public, let alone Reclamation, of a range of reasonable alternatives, thereby failing to promote informed decision making, and ultimately fails to fulfill NEPA's purposes. At a minimum, the DEIS should have analyzed an additional alternative, construction of Chimney Hollow Reservoir without use of prepositioning. This would enable Reclamation to take into account the uncertainty arising from the illegality of prepositioning and also inform the COE's section 404(b)(1) Guidelines analysis.	
28	**7. Inadequate Analysis of Socioeconomic Impacts Identified during Scoping** The west slope socioeconomic issues identified during scoping include, among others, "potential impacts to tourism and recreation industries in Grand County" (not just active recreation participants using publicly accessed facilities), "additional cost associated with the potential need to upgrade wastewater treatment plants in the Fraser River and Colorado River basins," and "economic impacts to the communities of Grand Lake, Kremmling and Hot Sulphur Springs and how each alternative would affect future	28. West Slope socioeconomic impacts likely to occur as a result of the action alternatives were considered to the extent information was available. Additional mitigation measures were defined and developed for the FEIS to minimize or avoid the potential impacts from implementation of the proposed project. The effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of Chapter 3 of the FEIS. Also see responses to Comment Nos. 328–346 for more specific responses to socioeconomic comments.

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28 29	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 20 growth and real estate values." ERO Resources Corp., *Public Scoping Report* 14 (Dec. 19, 2003). While the DEIS addresses some of these potential impacts, its analysis is too narrow and excludes impacts of vital importance to Grand County and its citizens. Therefore, the DEIS fails to take the hard look that NEPA requires. There are three types of impacts that are excluded from consideration, understated, or ignored in the DEIS's socio-economic analysis: (1) impacts referenced in ERO's Public Scoping Report and not pursued; (2) impacts referenced in the Recreation, Land Use or Visual Impacts sections of the DEIS and not pursued; and (3) impacts mentioned in earlier documents submitted by Grand County but are missing from the DEIS. Many of these impacts are discussed in sections 1.1, 1.2, and 1.3 of the memorandum dated December 15, 2008, from Coley/Forrest, *Windy Gap Firming Project - Draft Environmental Impact Report (DES 08-30)* ("*Coley/Forrest Memorandum*"), attached as Exhibit F. 7.1 **Pervasive Disregard for the Private Sector in Grand County**. Water resources and the local Grand County economy are inextricably linked, as set forth in Coley/Forrest, Inc., *Grand County: Its Economy and Water Resources* (2007) (prepared for Grand County). Although the WGFP directly impacts the environmental quality of the Colorado River, Lake Granby, Shadow Mountain Reservoir, and Grand Lake, there is a pervasive and nearly total disregard in the DEIS for private sector impacts arising from the WGFP's impacts on these surface waters. Some private sector impacts that are ignored include: • ranchers whose irrigation systems fail due to reduced stream flow in the Colorado River; • ranchers who rely on fishing leases along the Colorado River; • real estate and resort developments where a healthy Colorado River is their primary or sole asset; • lakefront and riverfront properties whose value is directly related to reservoir water clarity and water quality; • numerous summer recreation-oriented and visitor-oriented businesses including private marinas, local motels, restaurants, recreation gear and apparel retailers, grocers and the like; • construction-related impacts on adjacent properties and developments.	29. Impacts on the Grand County private sector are evaluated and disclosed in the EIS to the extent that information was available and the action alternatives would have an effect on those resources. See responses to Comment Nos. 328–346 for more detailed discussion of this comment.

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30	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 21 7.2 **Socioeconomic Impacts Excluded – Recreation.** The most significant exclusion arises from the DEIS's definition of recreation which is limited to active recreation where there is public access. There is a general bias in the DEIS that, if recreation is not active recreation that is accessible by the general public, then it merits no analysis. The only recreation activities quantified in the DEIS are commercial kayaking and commercial rafting on selected portions of the Colorado River and related camping. This is narrow and inadequate. While commercial kayaking and commercial rafting in selected reaches of the Colorado River are a few core summertime visitor activities, there are other more significant recreation activities that bolster the Grand County economy in the summer that are likely impacted by the WGFP. These include: • commercial and private fishing in locations other than Reach 5 of the Colorado River; • other commercial and private boating in reservoirs; • camping in locations other than Reach 5 of the Colorado River, and • passive recreation enjoyment of the Colorado River and the reservoirs. Each of these affected recreation activities has related impacts on lodging, restaurant sales, recreation equipment, rental providers, guides or outfitters, and other related purchases. In the summer, many out-of-state visitors come to Grand County because of Rocky Mountain National Park, a national destination, but they linger because of the fishing, boating, and scenic beauty that Grand County currently offers. The local economy relies on this recreation relationship. The water resources that are compromised by the WGFP are necessary components of Grand County's scenic beauty and tranquility and its more passive recreation venues. (See comments R-1, R-2, R-6 to R-8, R-11 in the attached *Coley/Forrest Memorandum*.) Further, the DEIS drops certain recreation impacts from further consideration because they are "too difficult to quantify" or "unlikely to affect visitors." These are discussed in section 1.7 of the *Coley/Forrest Memorandum*. This is inconsistent with EPA *Guidelines for Economic Analyses* which provide extensive detail on how to treat qualitative or uncertain impacts. (See comments SE-3 - SE-7, SE-10, and SE-12 in the attached *Coley/Forrest Memorandum*.)	30. The recreation and socioeconomic analyses focused on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process and are the most likely to be affected by hydrological changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report and in the Section 3.19.2.3 on Recreation—Effects Common to All Alternatives. Effects were quantified where data on use and impacts are available. Effects of the proposed alternatives on recreation experiences and aesthetics are quantitatively described wherever possible. Where a quantitative discussion is not possible, effects are discussed qualitatively, recognizing that these effects vary widely by individual user. The DEIS correctly states that hydrological changes are unlikely to adversely impact sport fishing under any alternatives, and that changes to the visual quality of the Colorado River would not be discernable to most viewers and would remain similar to existing conditions. It is therefore reasonable to assume that the proposed hydrological changes would not impact fishing use of private lands along the Colorado River. Potential effects of hydrological changes on commercial and private fishing opportunities are further described in the FEIS. However, the aquatic resource analysis determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. The direct and secondary economic impacts of boating and camping activities are described in detail in the Socioeconomics Section 3.22.2 of the EIS. The recreation resources analysis focuses on the potential effects of the proposed hydrological changes on river and lake recreation. Where possible, these quantitative hydrological changes are related to measurable thresholds that affect recreational access and opportunities (such as flow levels and access to boat ramps). By their very nature, most recreation uses are widely dispersed, are not quantified, and the quality of recreation experiences vary widely by individual user. For this reason, no attempt was made to quantify effects on recreation if there is not sufficient data to support that analysis. Instead, potential impacts were described wherever possible in a qualitative manner based on professional experience using the best available information. This approach is consistent with NEPA requirements and the level of impacts that would result from the alternatives. Section 3.25 of the EIS describes a number of mitigation measures that directly or indirectly would reduce potential socioeconomic impacts.

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31	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 22 7.3 **Socioeconomic Impacts Excluded – Land Use / Agricultural Impacts.** The Land Use section (3.18) of the DEIS does not acknowledge a relationship between Colorado River hydrology and agricultural land use. Therefore, the DEIS's discussion of socioeconomic impacts does not address this important negative impact. Based on research conducted by Coley/Forrest, there are substantial potential negative relationships between further reductions in Colorado River streamflow and agricultural land uses through irrigation ditch failures, impacts to development directly dependent on river and reservoir views and usage. These are documented in communications with the Grand County ranching community. Coley/Forrest, Inc., *Grand County: Its Economy and Water Resources* (2007) (prepared for Grand County, Colorado). See *also* comments SE-1 and SE-9 in the attached *Coley/Forrest Memorandum.*	31. The WGFP would not typically divert water under low-flow conditions and would not cause flows to drop below the minimum bypass requirements in the Windy Gap water rights decrees. Irrigation water rights senior to upstream water rights have the ability to place a call on the river if flows are insufficient. The FEIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)). Irrigation diversions would remain responsible for developing a reasonable means of diversion for their water. The Subdistrict paid $500,000 to upgrade diversion structures for ranches on the Colorado River below Windy Gap Reservoir for the original Windy Gap Project, which would divert more water than the WGFP.
32	7.4 **Countywide Analysis.** The few socioeconomic impacts that are reported in the DEIS are presented on a countywide basis. This approach misses the significance of impacts that may seem small on a countywide basis, but comprise the economic lifeblood of smaller communities and some economic sectors. For example fishing and boating along some reaches of the Colorado River are significant areas of summer economic activity in the relatively small communities of Hot Sulphur Springs and Kremmling. The *Public Scoping Report* expressly mentions concerns about impacts on these communities; the DEIS ignores them.	32. There is not sufficient economic information available to evaluate impacts on particular communities; thus, countywide results are reported. An explanation was added to the Section 3.22.2.2 (Method for Effects Analysis) in the FEIS explaining that countywide effects may be concentrated in particular communities or areas within the county.
33	7.5 **Cumulative Effects Analysis**. The DEIS states that the "cumulative socioeconomic effects were evaluated" but provides only the results of this analysis. DEIS at 3-286. The analytical steps are excluded from the DEIS and the Socioeconomic Technical Resource Report, so it is not possible to analyze the results. If Reclamation had concluded that the socioeconomic issues identified during scoping were not significant or had been covered by prior environmental review, it was required to include "a brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere." 40 C.F.R. § 1501.7(a)(3). Therefore, the DEIS must include an analysis of *all* issues identified during scoping or an explanation of why they are insignificant or have already been analyzed. Furthermore, when the DEIS does analyze environmental impacts, it often fails to do so adequately by minimizing or overlooking impacts to Grand County. Such deficiencies are identified in this letter, the comment letters on technical reports, and the other letters that Grand County has submitted.	33. The Cumulative Effects Section 3.22.3 for Socioeconomics was clarified in the FEIS to explain that the quantitative hydropower and socioeconomic impacts were calculated using the same methodology as direct effects using the cumulative effects hydrology. As explained in responses to other socioeconomic comments, the FEIS has been modified where necessary to provide cross-references to the discussion of impacts elsewhere in the document, or an explanation has been provided regarding why the impacts were not considered to be significant or were covered by prior environmental review.
34	**8. Criteria on Significance** The DEIS reports many impacts in numerical form, often without criteria for determining whether those impacts are significant and without explaining what those	34. The context and intensity of resource impacts were described as accurately as possible in the Environmental Consequences section of the EIS based on the best available information. Quantitative analysis of impacts was made wherever sufficient data were available. Impacts were compared to regulatory laws or standards where applicable. The results of the impact analysis were used to develop mitigation measures to reduce or eliminate impacts where possible.

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34	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 23 numerical changes mean. For example, we are told that there would be increases in temperature, specific conductivity, ammonia concentrations, inorganic phosphorus concentrations, selenium concentrations, and aquatic plant growth and decreases in dissolved oxygen concentrations in the Colorado River on July 25; and that these changes vary by alternative. DEIS at 3-96 to 3-101. But we are not told what effect these changes would have on aquatic life in the Colorado River or whether any of the changes would be significant. Without knowing whether the changes would be significant or insignificant and the reasons therefore, it is impossible to make an informed comparison of the environmental impacts of different alternatives. Although the DEIS does refer to various water quality standards, they are not necessarily relevant to the issue of significance for purposes of NEPA. To correct this deficiency, the DEIS should include specific criteria for each impact category to determine whether a given impact would be less than significant, potentially significant, or significant, and explain the reasoning behind these conclusions It should also include a discussion of mitigation measures for impacts that are potentially significant or significant.	
35	**9. Inadequate Discussion of Mitigation** An EIS must include a discussion of "[m]eans to mitigate adverse environmental impacts . . . ." 40 C.F.R. § 1502.16(h); *see also* 73 Fed. Reg. at 61,316-17 (to be codified at 43 C.F.R. § 46.130). As the Supreme Court recognized, such a discussion is essential to ensure that agencies take a hard look at the environmental consequences of proposed actions. *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352. Furthermore, > omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. *Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.* *Id.* (emphasis added); *see also Colorado Environmental Coalition v. Dombeck*, 185 F.3d at 1173 ("It is not enough to merely list possible mitigation measures."). Judged by these requirements, the discussion of mitigation in the DEIS is still inadequate.[4] Many of the proposed west slope mitigation measures for the Proposed Action are too vague and uncertain to enable Reclamation, Grand County, or other [4] The status of one mitigation measure is unclear, because it is found in the Executive Summary, but does not appear to be included in the body of the DEIS. DEIS at ES-21 ("Opportunities for improvements to aquatic life habitat in the Colorado River and mitigation of impacts to fish will be coordinated with CDOW, Grand County and other responsible agencies."), 3-145, 3-293.	35. Additional mitigation measures were defined and developed to minimize or avoid potential adverse impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.

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35	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 24 interested groups and individuals to evaluate "the severity of the adverse effects." *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352. Some of the most significant west slope impacts from the WGFP would result, directly or indirectly, from reduced surface water flows. Yet the only proposed mitigation measures for surface water hydrology relate solely to Granby Reservoir. DEIS at 3-55. Even those are too uncertain to qualify as mitigation. Reclamation notes only that "*it may be possible* to modify prepositioning operations" and undertakes to conduct additional evaluations "*to determine if* changes in the timing of water deliveries to the East Slope can reduce impacts to Granby Reservoir while still meeting the purpose and need for the project." *Id* (emphasis added). As a cooperating agency, Grand County is entitled to review and comment on all such proposals and evaluations. *Memorandum of Agreement Between the Bureau of Reclamation and Grand County Board of County Commissioners for the Windy Gap Firming Project Proposed by the Municipal Subdistrict, Northern Colorado Water Conservancy District*, dated effective January 22, 2005 ("MOA"), § V.I.	
36	With regard to surface water quality, Grand County appreciates the Municipal Subdistrict's commitment to continued participation and funding of ongoing nutrient studies in the Three Lakes System. DEIS at 3-129. Although the County also welcomes the proposal to determine whether increasing bypass flows from 90 to 135 cfs when Windy Gap is being pumped would result in reduced downstream temperatures, it is dismayed the Municipal Subdistrict would only "consider increasing required bypass flows under certain water supply conditions" if the studies are favorable. *Id.* As mitigation for recreation and socioeconomic impacts, the Municipal Subdistrict would curtail diversions from the Colorado River if flows at the Kremmling gage are less than 2,200 cfs during the annual Big Gore Race. Id. at 3-253, 3-290. While Grand County appreciates that gesture, the measure would not mitigate impacts to kayaking, rafting, fishing, and other recreational activities on days other than those on which the Big Gore Race are held, nor would it address the other significant socioeconomic impacts to Grand County discussed in these comments. *See also* comment letters dated February 11, 2008 on Draft Recreation Resources Technical Report and Draft Socioeconomic Resources Technical Report; and letter dated February 11, 2008 transmitting Coley/Forrest report on Draft Recreation Resources Technical Report and Draft Socioeconomic Resources Technical Report.	36. Effects of the WGFP on temperatures downstream of the WG Project were addressed in the Fish and Wildlife Mitigation Plan (FWMP) developed by the Subdistrict in accordance with CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Mitigation measures were developed to correspond with projected impacts. Dynamic temperature modeling of Colorado River stream temperatures was used to assess potential impacts as described in Surface Water Quality Section 3.8.2 of the FEIS. To prevent impacts to the flows needed for the annual Gore Race, the Subdistrict will curtail diversions if flows in Gore Canyon at the Kremmling gage fall below 1,250 cfs, the preferred flows for kayaking in this reach per comments from the Bureau of Land Management (Comment Letter 1054 and Comment No. 8). The Recreation Section 3.19.2 of the FEIS provides a revised discussion on impacts to boating on the Colorado River, and as indicated in Section 13.19.2, the impacts to preferred recreation boating flows from the WGFP would be fairly minor and infrequent.
37	Another deficiency of the DEIS regarding mitigation is that it merely catalogs the mitigation measures included in the 1981 Windy Gap EIS, and does not include an adequate discussion of those measures. *See* DEIS at 1-7 to 1-8. What is needed is a comparison of the impacts predicted in the Windy Gap Project EIS with the actual impacts that have resulted from that project, together with an analysis of whether, and to what extent, the mitigation measures have been effective. For example, the Municipal Subdistrict paid $100,000 for a habitat manipulation project and $450,000 for biological	37. Mitigation measures implemented as part of the 1981 Windy Gap EIS are presented in Chapter 1 of the FEIS as background material. These measures were developed as part of agreements with Grand County, the Colorado River Water Conservation District, Northwest Council of Governments, Three Lakes Water and Sanitation District, and other West Slope parties as mitigation for the Windy Gap Project. To the extent that mitigation measures implemented for the original Windy Gap Project have affected the existing environment, these measures are now part of the existing environment. Additional mitigation measures were developed for the identified impacts of the WGFP and are presented in the FEIS (Section 3.25).

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37	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 25 investigations. The DEIS should have reported on the effectiveness of the habitat mitigation project and what was learned from the biological investigations. *Id.* at 1-7. Another example is the proposal to determine whether increasing bypass flows from 90 cfs to 135 cfs when Windy Gap is being pumped would result in reduced downstream temperatures. *Id.* at 3-129. That study should have been completed before the DEIS was prepared. An analysis of the original Windy Gap mitigation could also provide a basis for Reclamation to determine whether existing mitigation measures satisfied the Municipal Subdistrict's obligation under Colo. Rev. Stat. § 37-45-118(1)(b)(II) for the original Windy Gap Project and to decide what additional mitigation measures would be necessary for the Windy Gap Project or the WGFP.	38. Reclamation cannot require how any entity uses its water rights. As mentioned in Chapter 1 of the FEIS, Participants would be reusing their Windy Gap water as best suited for their specific circumstances. For some Participants, this includes a capture and reuse program for nonpotable irrigation; for others, a second use of Windy Gap water is used to augment other depletions. When Windy Gap water deliveries become reliable through a firming project, Participants can better plan the most efficient way to reuse this water. Additionally, WGFP participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Reuse is one of the elements that must be fully considered as participants develop conservation plans that are submitted to Colorado for approval. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.
38	There are a number of obvious mitigation measures the DEIS should have considered, but does not. More detailed mitigation proposals are contained in Grand County's December 29, 2008 letter to COE regarding the Windy Gap Firming Project 404 Permit Application ("*404 Permit Comment Letter*"). Examples of mitigation that should have been discussed in the DEIS include, without limitation: • Because Windy Gap water can be reused to extinction, unlike C-BT water, the DEIS should have discussed requiring WGFP participants to reuse to extinction all or a significant portion of their Windy Gap water. *See* DEIS at 1-12, 1-19.	39. Water conservation is a component of each of the Participants' operations, and Participants have committed to maintaining a state-approved conservation plan. The plan measures help conserve available water supplies and reduce demand, and as a result, can delay the timing of future water needs. Additional discussion on water conservation is found in response to Comment No. 54.
39	• Although the DEIS rejects water conservation as an alternative, it does not explain why water conservation should not be proposed as an additional mitigation measure. The DEIS does, after all, recognize that "[t]o meet future water requirements will require continued improvements in water conservation in addition to the proposed WGFP." *Id.* at 1-18.	
40	• The DEIS does not consider what would probably be the most effective mitigation measure, adaptive management of the Upper Colorado River. 73 Fed. Reg. at 61,315 (to be codified at 43 C.F.R. § 46.30) ("Adaptive management recognizes that knowledge about natural resource systems is sometimes uncertain."); 61,317 (to be codified at 43 C.F.R. § 46.145) ("Bureaus should use adaptive management, as appropriate, particularly in circumstances where long-term impacts may be uncertain . . . ."). *See generally* The NEPA Task Force Report to the Council on Environmental Quality: Modernizing NEPA Implementation 44-56 (Sept. 2003). In short, this would entail developing a stream management plan with all the major diverters. The plan would include qualitative goals, monitoring to identify whether the goals are being met, and specified triggers to require	40. The purpose of the WGFP is to provide the Participants with reliable delivery of their water rights. Participants therefore need some degree of certainty on the availability of water to meet their demands. Mitigation measures were developed based on the impacts identified through the NEPA process, and Reclamation has determined that these measures should effectively reduce impacts. Effects of the WGFP on stream temperatures downstream of the WG Project were addressed in the Fish and Wildlife Mitigation Plan (FWMP) developed by the Subdistrict in accordance with CRS 37-60-122.2 (FEIS Appendix E). The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). The FWMP includes modifying prepositioning to reduce fluctuations in Granby Reservoir and additional operational measures such as runoff forecasting would be used to better time Windy Gap pumping to reduce spills. While WGFP mitigation measures may contribute to meeting some of the goals of Grand County's Stream Management Plan (SMP), the WGFP and SMP have different objectives.

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40	changes in operation. A decision-making process would be established to adapt operations to achieve the management plan's goals for the benefit of all parties, when specified. The Grand County Stream Management Plan is the perfect basis for an Adaptive Management Plan.	42. The proposed upgrade of the 69kV power line is not related to the WGFP. The proposed upgrade is not required to satisfy power demands for pumping of Windy Gap water. Western Area Power Administration's (Western) planned upgrade of the existing transmission line is not dependent on implementation of the WGFP nor is the WGFP dependent on implementation of the power line and substation upgrade. The purpose of the project is to strengthen the power grid in this area to minimize or eliminate impacts to all current electrical power users caused by increased growth in this area of Grand County and the potential failure of the Adams Tunnel power cable. The new line could improve reliability for Windy Gap pumping, but is not necessary for continued operation of the existing pumps.
41	• The DEIS does not consider integrated operations of the Denver Water Board and the Municipal Subdistrict systems to serve the City of Broomfield, a WGFP participant that wants to firm 13,739 af of water. Since the Denver Water Board and the Municipal Subdistrict both serve Broomfield, it would seem that allowing water to bypass the Denver Water Board diversion points in the headwaters of the Fraser River, be captured in Windy Gap, and then moved through the C-BT system to Broomfield could provide benefits to the Fraser River. Unlike water moved through the Moffat system which cannot be used to extinction, water provided from Windy Gap can be. This measure could provide additional water for the front range.	
42	• The DEIS does not consider upgrading the Windy Gap Substation. Currently, Western Area Power Administration is in the process of preparing an EIS for upgrading a 69kV line to 138 kV from the Windy Gap Substation to the Granby Pump Plant. Prepositioning would require more pumping by a system that may not be able to meet future demands. This potential impact could be mitigated, at least in part, by upgrading the substation.	43. Western receives the power from any additional water deliveries to the East Slope and has existing contracts to sell this power when it is available. Reclamation does not receive any of the revenues from hydropower generation.
43	• Reclamation is a beneficiary of the WGFP through "shrink" water. This water could produce approximately $1.4 million in additional revenue to Reclamation, which could be used to fund the clean up of Grand Lake. If one of the short-term solutions is to draw down Shadow Mountain Reservoir, these funds should also be used to pay for the pumping and power interruption charges, so that no other agency or entity is required to bear any such costs.	
44	**10. Cumulative Actions** Cumulative actions are actions "which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." 40 C.F.R. § 1508.25(a)(2). Although section 1508.25(a)(2) uses the word "should," courts have made preparation of a single EIS mandatory in the case of cumulative actions: "Under § 1508.25, two or more agency actions *must* be discussed in	44. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver changed their demand estimate after the hydrologic model for the WGFP was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The U.S. Army Corps of Engineers (Corps) is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

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44	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 27 the same impact statement where they are . . . 'cumulative' actions." *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387 F.3d 989, 998-99 (9th Cir. 2004) (emphasis added). As explained in *Klamath-Siskiyou*, the environmental analysis must be done in a single document "when the record raises 'substantial questions' about whether there will be 'significant environmental impacts' from the collection of anticipated projects." *Id.* at 999. *See Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1215 (9th Cir. 1998) (single EIS required for five timber sales in same watershed). The WGFP and the Denver Water Board's Moffat Collection System Expansion project are cumulative actions. The Denver Water Board proposes to develop 18,000 af of new firm yield to the Moffat Treatment Plant, primarily through diversions from the Upper Fraser River and Williams Fork River basins. DEIS at 2-42. Specifically, flows in the Fraser River and the Colorado River below the confluence with the Fraser will be reduced by average annual diversions of about 9,300 af. *Id.* at 3-42. Other impacts to the Colorado River will result from changes in the timing of flows below the Williams Fork Reservoir due to changes in the operation of the reservoir. *Id.* at 3-46. These impacts to the Colorado River are themselves significant, as are those of the WGFP. Together they are cumulatively significant and therefore must be analyzed in the same EIS.[5] 40 C.F.R. § 1508.25(a)(2). Cumulative impacts to the Platte River basin may also be cumulatively significant. A single EIS analyzing the impacts of both projects is not a mere formality. Without such EIS, there can be no assurance that Reclamation and COE have, collectively, taken a hard look at alternatives to the simultaneous operation of the WGFP and Moffat Collection System Expansion project, the cumulative environmental impacts of those two projects (with emphasis on the hydrology, water quality, and aquatic resources of the Colorado River), and measures to mitigate those impacts. Here, a single EIS is particularly appropriate, given the complex interrelationships among present and future diversions from the Upper Colorado River Basin. *See Kleppe v. Sierra Club*, 427 U.S. 390, 413 (1976) ("Cumulative environmental impacts are, indeed, what requires a comprehensive impact statement."). Indeed such complexity argues for use of adaptive management, with development of a stream management plan and monitoring to ensure that the operation of both projects contributes to achieving the management plan's goals. [5] The Environmental Protection Agency also suggested this in its comments on WGFP EIS scoping. Letter dated November 4, 2003, from EPA to the Bureau.	

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45	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 28 **11. Wild and Scenic Designation** The DEIS notes that the Kremmling and Glenwood Springs Field Offices of the BLM analyzed river and stream segments that might be eligible for inclusion in the National Wild and Scenic Rivers System ("NWSRS") and identified several segments in Grand County that are eligible for inclusion. DEIS at 3-233 to 3-234. The DEIS also recognizes BLM's policy that when a river segment is determined to be eligible "its identified outstandingly remarkable values shall be afforded adequate protection, subject to valid existing rights, and until the eligibility determination is superseded, management activities and authorized uses shall not be allowed to adversely affect either eligibility or the tentative classification . . . ." BLM Manual § 8351.32.C (May 19, 1992); see also *id.* § 8351.52.C. But the DEIS fails to take the next step and analyze what effect the alternatives would have on BLM's interim management policy and whether Reclamation should use its own authorities to protect these segments until the eligibility determination is superseded. In addition, "[o]nce a river is found eligible, the respective agency is committed to evaluate all actions within its control through the filter of the river's potential for designation. Some specific authorities for protecting river-related values include the Clean Water Act for free flow and water quality, the Endangered Species Act for plant and animal species within a river corridor, and the Archaeologic[al] Resources Protection Act for cultural resources." Interagency Wild and Scenic Rivers Coordinating Council, *The Wild & Scenic River Study Process* 30 (Dec. 1999). The DEIS also fails to evaluate the WGFP "through the filter of the river's potential for designation." Instead, it specifically declines to determine whether any of the alternatives would affect the suitability of the eligible segments for inclusion in the NWSRS. DEIS at 3-235. The Nationwide Rivers Inventory compiled by the National Park Service ("NPS"), available at http://www.nps.gov/ncrc/programs/rtca/nri/states/co.html, includes a 23-mile reach of the Colorado River, from State Bridge to the Blue River. (As of December 4, 2008, the NPS webpage had not been updated to include the 5 segments BLM determined were eligible in March 2007.) "Each federal agency shall, as part of its normal planning and environmental review process, take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory . . . ." Presidential Memorandum for the Heads of Departments and Agencies (Aug. 2, 1979). The DEIS fails to do that. Further, "[a]gencies shall, as part of their normal environmental review process, consult with the Heritage Conservation and Recreation Service [now the NPS] prior to taking actions which could effectively foreclose wild, scenic, or recreational river status on rivers in the Inventory. *Id*; *see also* CEQ Memorandum for Heads of Agencies, Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory, 45 Fed. Reg. 59,190 (Sept. 8, 1980) ("CEQ Memorandum").	45. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. The Wild and Scenic designation process is described in the Recreation Section 3.19.1.4 of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, the decision on Wild and Scenic River status is a determination made by the BLM as part of the planning process, and is not part of the evaluation for the WGFP EIS. Reclamation provided BLM with hydrologic model data from the evaluation of the WGFP for use in the Wild and Scenic River evaluation. None of the WGFP alternatives would affect BLM recreation facilities within the upper Colorado River Special Recreation Management Area. Reclamation began preparation of the WGFP EIS in 2003. Prior to any of the dates mentioned in the comments. The draft EIS was released for public review and comment on August 29, 2008. Although BLM may not be a cooperating agency in preparation of the EIS, there was coordination with BLM during preparation of the EIS and the EIS contains substantial analysis that can be used in the wild and scenic evaluation process. Additionally, Reclamation is a participant in the wild and scenic evaluation process being conducted by BLM. BLM was provided copies of the DEIS for review and comment and provided comments on the DEIS.

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45	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 29 Such consultation did not occur. *See* DEIS at 4-4. The CEQ Memorandum also requires that "[w]hen environmental impact statements are prepared on proposals that affect Inventory rivers, the lead agency should request HCRS and the affected land managing agency to be cooperating agencies as soon as the Notice of Intent to prepare an EIS has been published." 45 Fed. Reg. at 59,192. It does not appear, however, that Reclamation requested either the NPS or BLM to be cooperating agencies.	
46	**12. Grand County's Status as a Cooperating Agency** In its congressional declaration of policy, NEPA provides that "it is the continuing policy of the Federal Government, *in cooperation with State and local governments* . . . to use all practicable means and measures . . . in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." 42 U.S.C. § 4331(a) (emphasis added). A cooperating agency is any federal, state, or local agency (other than a lead agency) that "has jurisdiction by law or special expertise[6] with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment." 40 C.F.R. § 1508.5. A cooperating agency is entitled to active and meaningful participation in preparation of an EIS. The CEQ regulations require a lead agency to "[u]se the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, *to the maximum extent possible* consistent with its responsibility as lead agency." *Id.* § 1501.6(a)(2) (emphasis added). Recently promulgated Department of the Interior regulations (based on 516 DM 1-6) also highlight the important role cooperating agencies should play in the NEPA process.[7] For example, "In accordance with 40 CFR 1501.6, throughout the development of an environmental document, the lead bureau will collaborate, *to the fullest extent possible*, with all cooperating agencies concerning those issues relating to their jurisdiction and special expertise." 73 Fed. Reg. at 61,320 (to be codified at 43 C.F.R. § 46.230) (emphasis added). Furthermore, the official of a bureau who is responsible for [6] "*Special expertise* means statutory responsibility, agency mission, or related program experience." 40 C.F.R. § 1508.26. Grand County's special expertise includes its 1041 permitting authority and special use permitting authority over the Windy Gap Project and any modifications thereto, as well as substantial knowledge about the west slope environmental impacts associated with the Windy Gap Project and the proposed WGFP, most of which would occur in Grand County. [7] These regulations apply to the Bureau. *See* 73 Fed. Reg. 61,291, 61,314 (Oct. 15, 2008) (to be codified at 43 C.F.R. § 46.10(a)).	46. Reclamation fully considered comments received from Grand County and the other cooperating agencies in preparing the EIS. All comments received from Grand County on the preliminary draft EIS were considered in developing the DEIS. There have been numerous meetings with Grand County to discuss their comments on various aspects of the EIS.

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46	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 30 making and implementing a decision and ensuring NEPA compliance "must whenever possible consult, coordinate, and cooperate with relevant State, local, and tribal governments . . . concerning the environmental effects of any Federal action within the jurisdictions or related to the interests of these entities." 73 Fed. Reg. at 61,317 (to be codified at 43 C.F.R. § 46.155). Grand County is a cooperating agency for preparation of the WGFP EIS pursuant to Memorandum of Agreement Between the Bureau of Reclamation and Grand County Board of County Commissioners for the Windy Gap Firming Project Proposed by the Municipal Subdistrict, Northern Colorado Water Conservancy District, dated effective January 22, 2005 ("MOA"). The MOA recognizes that Grand County qualifies as a cooperating agency because the WGFP may have impacts on the County's environment and may require the County to issue a new special use permit, a new 1041 permit, or amendments to the existing permits. MOA, § I.A, C. Among other things, Reclamation agreed to: • Identify the County in the EIS as a cooperating agency and summarize its roles and responsibilities as a cooperating agency. • Be available to discuss with the County any questions or issues related to County jurisdiction and special expertise. • Use the environmental analyses and proposals of the County, where it has special expertise and jurisdiction, to the maximum extent possible, consistent with Reclamation's responsibilities as the lead agency. • Prior to inclusion in the EIS, provide to the County for review and comment project information and study results concerning the County's jurisdiction and special expertise,[8] including: (1) Draft hydrology and water quality reports, data, and analyses for reservoirs, lakes and stream reaches in Grand County that may be impacted by the project and the analyzed alternatives. (2) Draft reports, data and analyses for environmental and social impacts within Grand County due to the project. [8] Grand County retained the right, however, to comment on all issues relating to the EIS. MOA, § IX.C.	

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46	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 31 (3) Reports, data and analyses of alternatives to be evaluated in detail in the Draft and Final Environmental Impact Statements ("EISs"). (4) Preliminary draft Chapters of EISs describing existing conditions and impacts within Grand County likely to be caused by the project. (5) Comment letters on the draft and final EISs that are specific to County data and impacts, for preparation of suggested responses. (6) Mitigation proposals that address impacts that may occur in Grand County caused by the Project. • Consult with Grand County on technical studies when the County has jurisdiction by law or special expertise associated with the resource being studied. • Promptly inform the County of all schedule changes relative to comment deadlines and meetings. MOA, § V. As a cooperating agency, Grand County submitted detailed comments through its counsel, Sullivan Green Seavy LLC, on the technical reports prepared for the WGFP Preliminary Draft Environmental Impact Statement ("PDEIS"). Although Grand County submitted these comments in a timely manner, it did not learn until too late that Reclamation intended to release the PDEIS for comment before it had reviewed or, in the case of some reports before it had even received, all the County's comments. As a result, Reclamation could not have considered or taken into account in its DEIS any of Grand County's comments submitted in 2008, contrary to its responsibilities to Grand County as a cooperating agency generally, and specifically under § I of the MOA. *See* 40 C.F.R. § 1501.6(a)(2); 73 Fed. Reg. at 61,320 (to be codified at 43 C.F.R. § 46.230); *see also Davis v. Mineta*, 302 F.3d 1104, 1123 (10th Cir. 2002) ("a reviewing court may properly be skeptical as to whether an EIS's conclusions have a substantial basis in fact if the responsible agency has apparently ignored the conflicting views of other agencies having pertinent expertise.") (internal quotation marks and citation omitted); *Fund for Animals v. Norton*, 281 F. Supp. 2d 209, 227 (D.D.C. 2003) (inadequate review of public comments suggests a failure to take a "hard look" under NEPA). A list of the County's comment letters on the technical reports is provided in Exhibit A. Neither the County nor its	

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46	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 32 counsel ever received any response to these comments. From our review of the DEIS, it is apparent that Reclamation largely ignored Grand County's comments when it prepared the DEIS. As a cooperating agency, Grand County also submitted comments on March 31, 2008 through its counsel, Sullivan Green Seavy LLC, on the PDEIS and requested a meeting to go through the comments in greater detail. Neither the County nor its counsel ever received any response to the PDEIS Comments. Nor did the requested meeting ever take place. Again, it is apparent that Reclamation largely ignored Grand County's comments when it prepared the DEIS. More generally, Reclamation's failure to take Grand County's comments into account is contrary to Executive Order 13,352 on "Facilitation of Cooperative Conservation," which directs the Secretary of the Interior to "carry out the programs, projects, and activities of the agency . . . that implement laws relating to the environment and natural resources in a manner that: (i) facilitates cooperative conservation; . . . [and] (iii) properly accommodates local participation in Federal decision-making . . . ." Exec. Order No. 13,352, § 3(a), 69 Fed. Reg. 52,989 (Aug. 30, 2004). "Cooperative conservation" is defined as "actions that relate to use, enhancement, and enjoyment of natural resources, protection of the environment, or both, and that involve collaborative activity among Federal, State, local, and tribal governments . . . . *Id.* § 2. In the preamble to its NEPA rulemaking, Department of the Interior recognized that "an emphasis on the use of cooperating agencies may result in additional steps in the NEPA process, but is likely to lead to improved cooperative conservation and enhanced decision making." 73 Fed. Reg. at 61,301. Reclamation's actions are not consistent with these objectives. In addition, Reclamation's lack of regard for Grand County's comments are contrary to the principle of consensus-based management, which "involves outreach to persons, organizations or communities directly who may be interested in or affected by a proposed action with the assurance that their input will be given consideration by the Responsible Official in selecting a course of action." 73 Fed. Reg. 61,316 (to be codified at 43 C.F.R. § 46.110(a)); see also Department of the Interior, Environmental Statement Memorandum ESM03-7, Procedures for Implementing Consensus-Based Management in Agency Planning and Operations (July 2, 2003). Understandably, Grand County has no assurance that its input was in fact given consideration. **Specific Comments by Section** 47 **Section 1.3.1 Municipal Subdistrict** Page 1-4	47. See responses on next page.

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47	**Comment.** The purpose and need is drawn so narrowly as to foreclose other less environmentally damaging alternatives. The purpose is "to deliver 30,000 af of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project and to provide up to 3,000 af of storage to firm water deliveries for the [Middle Park Water Conservation District]." The real purpose and need for the participants is for more water generally. The purpose and need statement might have more credibility if the original Windy Gap Project participants were the same as the WGFP participants. Instead, the DEIS ignores the fact that of the original eight cities in the original Windy Gap Project, only three are participating in the WGFP, and only one to the full extent of its ownership (Longmont 80 original and firming units).). See attached Exhibit D, *Windy Gap Ownership and Transfer History*. This Exhibit shows that only 28% of the requested storage volume is by original owners, who collectively need only 26,000 af. The City of Broomfield, the participant requesting the most storage at 25,000 af was not even located within the boundaries of Northern or the Municipal Subdistrict when the water rights were appropriated or the ROD issued for the original project.	See response to Comment No. 24 for issues related to the WGFP purpose and need. Windy Gap units are fully transferable and, therefore, the needs of the current Windy Gap unit holders participating in the WGFP are the basis for establishing the project purpose and need. The location of the WGFP Participants' service area is not a factor in receiving Windy Gap water. There is no required service area for the Windy Gap Project as there is for the C-BT Project.
48	**Section 1.4.1 Colorado-Big Thompson Project** Page 1-4 **Comment.** Please note that the C-BT Project was approved by Congress in Senate Document 80 and decreed in the Blue River Decree for supplemental irrigation and industrial use, not municipal purposes. In addition note that the C-BT project does not allow for storage of C-BT water in Chimney Hollow Reservoir because Chimney Hollow reservoir is not a C-BT project feature approved by Congress.	48. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
49	**Section 1.4.2.1 Windy Gap Project Environmental Impact Statement** Page 1-5 **Comment.** The June 8, 1981 ROD issued by the Corp of Engineers permitted a project (Application No. 6520) with a maximum diversion of 300 cfs according to Exhibit A to that ROD, which described "a pumping plant with a maximum discharge capacity of 300 cfs." The DEIS notes that diversions are limited to 600 cfs. Impacts greater than 300 cfs need to be included in this NEPA analysis and corresponding mitigation to substantially reduce impacts associated with diversions at 600 cfs.	49. The 404 permit on file with the Corps, which was revised in a letter from the Corps dated June 26, 1981, lists a diversion rate of 600 cfs. Reclamation's final EIS and ROD on the WG Project dated June 18, 1981 and all mitigation and agreements for the original project, including the Biological Opinion from USFWS, were based on a diversion rate of 600 cfs and an estimated annual depletion to the Colorado River of about 58,000 acre-feet. Mitigation is only required for the incremental impacts of the WGFP.
50	**Section 1.5.2 Windy Gap Project Delivery Shortage**	

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50	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 34 Page 1-9 **Comment.** The actual diversions from Windy Gap averaged 11,080 af.	50. The purpose of this section is to present Windy Gap *deliveries* as opposed to Windy Gap *diversions*. Historical Windy Gap deliveries have averaged less than 10,000 AF/yr for the period from 1985 through 2004. Table 3-2 was added to the FEIS, which shows historical Windy Gap diversions.
51	Page 1-10 **Comment.** Additional reasons that need to be added to the bullet points for lack of diversions are: (1) lack of demand by original participants; (2) sale of units to new entities which increased water demand over time; (3) power costs charged for pumping based on starting up a pump and costs to purchase "Overrun Power" at market rates which is considerably higher than the preferred rate for "Allotted Power".	51. Items (1) lack of demand by original participants and (2) sale of units to new entities, which increased demand over time, are not an accurate description of Participant demands. It was anticipated that demands would increase over time and sale of units did not increase demand, but only shifted demand to different Participants. The anticipated increase in demand over time, which is listed as the third bullet point on page 1-10, is the primary reason for low deliveries to date. As demand grew in the mid-1990s, there was no unused capacity in the C-BT System to deliver in-priority Windy Gap water to the Participants. The last bullet point in the discussion in Section 1.5.2 of the FEIS indicates that Participant demands in the early years were less than the amount of available water. The sale of Windy Gap units to new entities may have changed the amount and timing of demand for Windy Gap water, but the effect on historical diversions would be difficult to identify.
52	**Section 1.6.1 Sources of Water Supply** Page 1-11 **Comment.** What is the basis of the statement that extreme droughts are excluded from firm yield planning? How does the author define an "extreme drought?"	Historically, the Subdistrict tried to optimize the timing of their pumping to minimize the associated power costs based on their power contract, but did not limit diversions because of power costs. Power costs have not been a significant factor in demands to date. 52. There is no precise definition of an extreme drought, but typically this indicates a period of very low precipitation such as a 1 in 100-year drought. Water providers seek to develop water storage to meet dry year needs, but it is generally not practicable or economical for firm yield planning to develop water supplies to meet extreme drought events like a 1 in 100-year drought. Additional text was added to Section 1.6.1 of the FEIS to clarify this.
53	Page 1-12 **Comment.** The discussion of "reuse" of trans-mountain water is incomplete. First, the 404 (b)(1) Guidelines require applicants for 404 Permits to take steps to "minimize potential adverse effects" to the aquatic ecosystem. Second, Colorado law requires that: "In order to minimize the amount of water removed from Western Colorado eastern slope importers should, **to the maximum extent feasible**, reuse and make successive use of the foreign water." *Denver v. Fulton Irrigating Ditch Company*, 506 P.2d 145, 148 (Colo. 1972) (emphasis added). In *Fulton* 506 P.2 at 146-147, the Colorado Supreme Court defined the terms "reuse" "successive use" and "right of disposition" as follows: (1) "'Re-use' means a subsequent use of importer water for the same purpose as the original use." [for example treatment of sewage to potable water standards and re-cycled into the regular water system, which the Court noted that Denver's research was continuing such that in the future potable water will be extracted from sewage for delivery to the water mains] (2) "'Successive use' means a subsequent use by the water importer for a different purpose." [for example after municipal use the treated sewage is used for irrigation] and (3) "'Right of disposition" means the right to sell, lease, exchange or otherwise dispose of effluent containing foreign water after distribution through Denver's water system and collection in its sewer system." The DEIS discloses that these participants practice "successive use" and "disposition" through exchanges of some of trans-mountain water. None "reuse" Windy Gap water. To satisfy requirements of federal and state law, the discussion of reuse must be expanded.	53. The discussion of reuse in Section 1.6.1 was revised in the FEIS as follows: Many of the Project Participants successively use, or are planning to successively use, Windy Gap supplies to minimize the acquisition of new supplies. Colorado

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54	**Section 1.6.2.3 Water Conservation** Page 1-15 **Comment.** The DEIS notes that water conservation includes both supply-side and demand-side management. If the WGFP is to be permitted as the least damaging environmental alternative, then conservation measures need to be included as conditions to the Carriage Contract or the 404 Permit. We have proposed such a permit condition in the *404 Permit Comment Letter*.	54. The WGFP Participants have committed to maintaining a state-approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365). Seven of the WGFP Participants have CWCB-approved plans, and other municipal water providers and water districts have committed to acquiring a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict WGFP Participants for use of C-BT facilities.
55	**Section 1.10 The Decision Process** Page 1-42 **Comment.** As noted above, the decision process will require resolution of many threshold legal questions that have not been resolved. Either execution of the Carriage Contract should be delayed until such questions can be resolved or any approvals must be contingent on resolving those questions.	55-56. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
56	**Section 1.10.2 Senate Document 80 and Section 14 Analyses** Page 1-42 **Comment.** The DEIS notes that Reclamation's decision on whether an excess capacity contract is consistent with Senate Document 80 and other federal law will be made "later" and is not part of this EIS. Grand County reiterates that it must be included in the negotiation process for any excess capacity contract pursuant to Senate Document 80.	
57	Pages 1-42 and 1-43 **Comment.** In a Reclamation study of nutrients in the C-BT system (Leiberman, 2008), there is a box and whisker plot showing the statistical similarity in secchi depths between Granby Reservoir, Grand Lake, Carter Lake, and Horsetooth Reservoir, and that also illustrates secchi depths are statistically different (shallower) on Shadow Mountain Reservoir. When Reclamation undertakes to "consider the effects of the proposed project on Reclamation's ability to continue meeting the five primary purposes of the C-BT Project and whether or not the C-BT Project can continue to be operated in accordance with lettered stipulations (a) through (l) in the Manner of Operation," please include in this consideration the fact that Grand Lake is the only natural lake of the five water bodies mentioned above, and that its trophic status prior to construction and operation of	

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 36	57. While it is true that Grand Lake is the only natural lake of the lentic water bodies considered, and the water quality of Grand Lake before the construction of the C-BT system may have been quite different than it is today, the analysis presented in the DEIS is focused on the expected changes in water quality as a result of the WGFP. The discussion of the current trophic state (based on data from 2000–2005) has been changed from mesotrophic to meso-eutrophic (see response to Comment No. 154).
57	the C-BT system was oligotrophic. This status has not been maintained, and in fact has been steadily degraded to the current conditions in which Grand Lake, contrary to the DEIS assertion that it is mesotrophic, can often be considered eutrophic.	Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, will reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP should not exacerbate the algae and clarity problem in Shadow Mountain Reservoir and Grand Lake. Therefore the WGFP should not affect the trophic state of Grand Lake.
	Section 1.10.3.	
58	**Comment.** Please add that Grand County will have 1041 permitting authority over all of the alternatives, not just those where there will be construction in Grand County. Grand County issued permits for the original Windy Gap Project. Each of the proposed alternatives will result in a change in the operation of and participants in the permitted Windy Gap Project thereby triggering either amendments to the existing permits or new permits.	58. See response to Comment No. 16.
	Section 2.1.2.1 Level 1 Alternative Screening Page 2-5	59. Section 2.1.2.1 was changed to include a discussion on the proposal that would prevent expansion of the C-BT Project diversions. Additionally, prior to making a final decision in a Record of Decision (ROD), Reclamation will evaluate the specific authorities through a technical review process. The review will lead to a determination of whether or not the proposed action can be implemented in compliance with Senate Document 80 and other authorities. See discussion text added to Section 1.10.2 of the FEIS. To model the effects of the proposed project and to ensure that total allowable C-BT storage would not change and that C-BT and Windy Gap water rights would not be expanded, the model assumes that C-BT Project would stop diverting water from the Colorado River for storage in Granby Reservoir when total C-BT contents in Granby Reservoir and Chimney Hollow Reservoir reach the volumetric limit of 539,758 AF, which is the physical capacity of Granby Reservoir. This would prevent expansion of C-BT Project diversions because it imposes the same constraint as if C-BT water was stored in Granby Reservoir as opposed to a portion being stored in Chimney Hollow Reservoir. Currently, C-BT diversions from the Colorado River to Granby Reservoir are curtailed when total contents in Granby Reservoir reach 539,758 AF because the reservoir is full and spilling.
59	**Comment.** Prepositioning is carried forward as part of the preferred alternative even though it may be illegal. The DEIS does not disclose the factual or legal basis for the statements that: 1) Total allowable C-BT storage would not change; or 2) the existing C-BT water rights and diversion would not be expanded. As described above, prepositioning involves both a change of C-BT and Windy Gap water rights. Only the water court has jurisdiction to decide whether: 1) total allowable storage would not change; 2) whether C-BT and Windy Gap water rights would be expanded; and 3) what terms and conditions need to be included to protect from injury.	
	Page 2-6	
60	**Comment.** The DEIS should explain why storage of CB-T water in Chimney Hollow Reservoir and prepositioning were not eliminated. Storage of Windy Gap water in Horsetooth Reservoir was eliminated because it would require Congressional action; Congressional action is required for storage of C-BT water in Chimney Hollow Reservoir.	60. Storage of Windy Gap water in Horsetooth would require that Reclamation enlarge Horsetooth.
	Section 2.2.1 Current Windy Gap Project Operations Page 2-14	
61	**Comment.** The DEIS states that Windy Gap is not stored on the East Slope. Since the impact analysis is based on this assertion, any amendment to the Carriage Contract must	

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61	make this limitation a condition. For purposes of this condition, storage would mean that water shall not be held in any facility for more than 72 hours.	61. This statement in the DEIS is a description of current Windy Gap project operations and does not apply to the proposed project. Both the C-BT Project and Windy Gap Project would continue to be operated in accordance with Colorado water law and each project's water rights decrees.
62	**Section 2.2.2 Participant Operations under the No Action Alternative** Page 2-15 **Comment.** It is speculative to include the enlargement of Ralph Price Reservoir as the No Action Alternative.	62. See response to Comment No. 26.
63	**Section 2.4.2 Operations** Page 2-24 **Comment.** The DEIS notes that Windy Gap is delivered instantaneously through the Adams Tunnel. However, in order to distinguish between Windy Gap water or C-BT water and to prevent unlawful enlargement of C-BT water rights, the Carriage Contract must require that each water right that is carried through the Adams Tunnel be accounted for separately based on actual - not instantaneous - diversion/deliveries.	63. Windy Gap water is accounted for in the C-BT Project system. This section was revised to clarify that the water is delivered to the East Slope by exchange.
64	**Comment.** The DEIS states that when C-BT water is stored in Chimney Hollow, that creates more space in Granby Reservoir. More space in Granby Reservoir creates the ability of the C-BT water rights, which are senior to Windy Gap, to store in that space. This creates the potential for expansion of use of the C-BT water rights. The DEIS says the C-BT diversions and water rights would not be expanded. We have proposed a permit condition in the *404 Permit Comment Letter* so that C-BT water rights will not be expanded.	64. See response to Comment No. 59 above.
65	**Comment.** Middle Park's 3,000 af should continue to be stored in Granby Reservoir. There is no need to deliver Middle Park's water to Chimney Hollow and then "exchange" it back Granby Reservoir for release.	65. This statement describes the proposed project, which includes 3,000 acre-feet of storage in Chimney Hollow Reservoir for Middle Park. At times, Middle Park's 3,000 AF would be stored in Granby Reservoir, and at other times it may be necessary to store Middle Park's Windy Gap water in Chimney Hollow Reservoir to prevent spilling from Granby Reservoir. Without storage in Chimney Hollow, Middle Park water would be subject to spill when Granby Reservoir fills with C-BT water. If Middle Park's Windy Gap water was only stored in Granby Reservoir, there would be no firm yield associated with that supply in years that Granby Reservoir fills and spills under current operations.
66	**Section 2.8.2 Reasonably Foreseeable Actions** Page 2-42 **Comment. Add to reasonably foreseeable future projects the** Colorado Springs Substitution and Green Mountain Reservoir Substitution and Power Interference Agreements as described in Grand County's letter dated October 30, 2008.	66. Additional discussion on the Colorado Springs Substitution and Green Mountain Reservoir Substitution and Power Interference Agreements was added to Section 2.8.2, Reasonably Foreseeable Actions of the FEIS. As described in detail in the FEIS, these agreements would have a very minor contribution to cumulative effects and, therefore, were not included in the analysis. Section 2.8.2.1 in the FEIS was revised to better explain these potential projects.
67	Page 2-44	

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67	**Comment.** (also page 3-42 and elsewhere) The reasonably foreseeable actions and cumulative effects sections should include a discussion of climate change. The United States Supreme Court has stated that the "harms associated with climate change are serious and well recognized." *Massachusetts v.* EPA, 127 S.Ct. 1438, 1455 (2007) (ruling that EPA can regulate greenhouse gases under the Clean Air Act). Therefore, global climate change must be analyzed under NEPA. See e.g. *Border Power Plant Working Group v. Department of* Energy, 260 F. Supp. 2d 997, 1028-1029 (S.D. Cal. 2007). At a minimum, the EIS could include a discussion of the influence of a 4 degree Fahrenheit temperature increase by 2050 and the possible influence on planning for increased winter precipitation matched by decreased summer precipitation as predicted in the Colorado Water Conservation Board's "Climate Change in Colorado" report. In considering climate change, Reclamation should follow the methods outline in its own document, appendix U of the "Final EIS- Colorado River Interim Guidelines For Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, October 2007."	67. The discussion of climate change in Section 2.8.2, Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation for applicable resources in Chapter 3 of the FEIS.
	Section 2.10.2 Comparison of Alternative Impacts Page 2-56	68. See responses to Comment Nos. 1 through 5.
68	**Comment.** Table 2-6 lists average Windy Gap Diversions of 36,352 af as existing conditions. This is wrong. Actual diversions from Windy Gap have averaged 11,000 af from 1985 to 2004 (page 1-9). This is the existing condition against which to compare impacts.	
	Page 2-67	69. See responses to Comment Nos. 1 through 5.
69	**Comment.** Table 2-7 Comparison of cumulative effects. The same error occurs in this table as in Table 2-6 with the incorrect reporting of Windy Gap diversions of 36,352 af	
	Chapter 3 Affected Environment and Environmental Consequences	70. Reclamation is not in a position, nor qualified, to determine whether or not a proposed project or alternatives is or is not in compliance with local zoning regulations or County Master Plans. In general, all of the alternatives would be subject to a variety of local, state, and federal permitting and compliance requirements beyond the requirements of NEPA. The FEIS identifies these compliance requirements but may or may not cover all necessary permitting requirements. It will be the responsibility of the applicant to comply with the appropriate local, State, and Federal permitting requirements. Many of the local zoning, land use, and permitting requirements established by the counties are additional regulatory measures with which the project proponent would need to comply; however, these regulatory measures are not necessarily in conflict
70	**Comment.** The DEIS fails to describe that most of the alternatives are not consistent with the requirements of existing local and regional plans including the Grand County Master Plan and the NWCCOG Water Quality Management Plan.	
71	**Comment. Displaying Windy Gap Diversions of 36,352 af as "Existing Conditions" is a fatal flaw.** Throughout the DEIS, Windy Gap Diversions for Existing Conditions are listed as 36,352 af as an average annual amount. This is a modeled number that is over	

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 39	with the proposed project. Counties and other regulatory entities will need to evaluate the conditions, terms, and permitting necessary to satisfy the requirements of their local jurisdictions for the selected alternative. See response to Northwest Colorado Council of Government's (NWCCOG) comments on the DEIS in relation to the Water Quality Management Plan in Letter No. 1107.
71	three times actual diversions. This flaw permeates every table, graph, text and makes it difficult to comment. See discussion in General Comments Section, above.	71. See responses to Comment Nos. 1 through 5.
	Section 3.3 Determination of Environmental Effects Page 3-2	
72	**Comment. The DEIS states that** "[f]or Reclamation purposes action alternatives are compared to the No Action alternative for determining effects." Reclamation should use existing conditions to compare effects.	72. The FEIS provides a comparison of the effects of the action alternatives with existing conditions and information for a comparison of no action with existing conditions. It was prepared in accordance with Reclamation and CEQ guidance on preparation of an EIS.
	Section 3.4 Area of Potential Effect Page 3-3	
73	**Comment.** Change "may" to "will" in the 8th line and put a period after "diminish" in the 13th line. As written, there are no bases for these statements without the changes.	73. In Section 3.4 of the FEIS, the "may" in the referenced sentence was changed to "would." The comma after diminish was deleted.
	Section 3.5.1.1 Affected Environment; Areas of Potential Effect Pages 3-3, 3-4 and 3-6	
74	**Comment.** For alternatives including Rockwell Mueller, affected area should include the Fraser River, which should also be considered due to impacts from the Moffat Firming Project. The statement "The Fraser River is not included in the study area because none of the alternatives affect Fraser River flows" cannot be true even during the filling of the Rockwell/Mueller Creek reservoir site.	74. The CDSS Model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area includes the Fraser River. However, the area considered for the analysis of hydrologic effects does not include the Fraser River basin because Windy Gap water would be the only source of supply for filling Rockwell/Mueller Reservoir. Native inflow to that reservoir from Rockwell and Mueller creeks would be bypassed; therefore, there would be no change in streamflows in those creeks or the Fraser River. The methodology for calculating or gaging native inflows to Rockwell/Mueller and Jasper East reservoirs has not yet been determined. The final methodology for calculating or gaging inflows would be determined with input from the State Engineer's Office (SEO) and Division of Water Resources. There would be no cumulative effects with the Moffat Collection System Project on the Fraser River. Additional discussion was added to the FEIS in Section 3.5.2.9.
	Page 3-6	
75	**Comment.** The sentence "Colorado River average monthly flow changes, as a percentage of total streamflow, would be less than 10 percent downstream of the confluence with the Blue River…" is misleading simply due to the location of the site downstream of two major confluences. Moreover, it probably is wrong owing to the inaccurate description of existing conditions discussed in General Comments Section, above. The percent change for each stream segment from the Granby Dam down to the study area boundary should be presented here in a table, or alternatively, the stream segments with the highest *and* lowest percent changes should be offered.	75. Average monthly flow changes as a percentage of total streamflow decrease downstream due to tributary inflows and gains. Therefore, it is not misleading that the percentage change in flow along the Colorado River is less at Kremmling versus upstream at Hot Sulphur Springs due to tributary inflows from the Blue River and Muddy Creek. The percentage change for several locations along the Colorado River from Granby Reservoir downstream to the USGS gage near Kremmling are presented in Appendix A of the FEIS (see Tables A-8, A-9, A-10, A-12, A-13, and A-14). Section 3.5.1.1 in the FEIS was revised to reference these tables in the discussion of the downstream extent for resource evaluations, and
76	**Section 3.5.1.3 Water Rights, Agreements and Contracts**	

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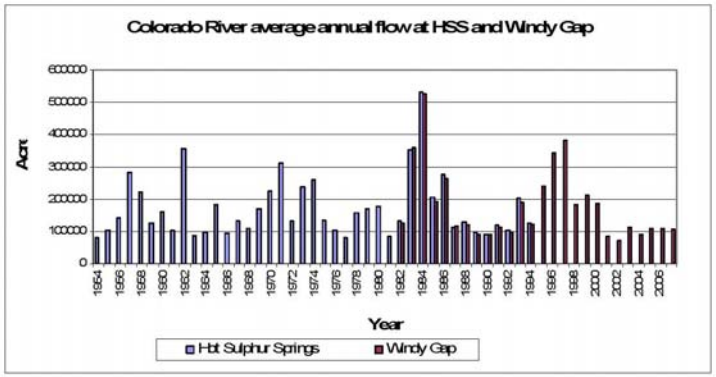
76	Page 3-6 **Comment.** As described above, there are a number of legal actions that are necessary to implement the WGFP.	76. See response to Comment Nos. 11–23.
77	**Section 3.5.1.4 West Slope Surface Water Hydrology** Page 3-8 **Comment.** Figure 3-3. This figure should not stop at 1994, but should continue on through the latest date available. While the USGS gage at Hot Sulphur Springs was abandoned by GS, USGS continues to maintain the gage at Windy Gap, which has been proven[9] to be statistically consistent with the Hot Sulphur Springs data (see figure below). The additional period of record from 1995 to 2007 is important to show the cumulative year drought conditions during that time, in particular the driest year on record from 1905 to 2007, which was 2002. In addition, a figure ought to be included to display predicted future flows over the next 30 years with WGF.  The additional water years should be included when evaluating trends, and low flow conditions. Similarly, special consideration should be made for the years in which Windy Gap water was and was not diverted. In addition, consideration should also be made for [9] Personal communication with Alan D. Druliner, Colorado Water Science Center, USGS, September 2008.	77. This figure was revised in the FEIS to include data through 2008 for the USGS gage at Windy Gap. Section 3.5.1.4 in the FEIS was revised to account for the additional water years included when evaluating trends and low-flow conditions. A figure was not included to display predicted future flows over the next 30 years. The WGFP model does not predict future flows, rather it relies on historical hydrology for the period from 1950 through 1996 to predict how the WGFP would operate under those hydrologic conditions. Table 3-2 was added to the FEIS in Section 3.5.1.4 to display historic Windy Gap pumping data for the period from 1985 through 2008. Consideration of climate change and associated effects on flows is addressed in Section 2.8.3.2 of the FEIS under the subsection Climate Change.

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77	the fact that the last century was one of the wettest on record, and that "climate models predict a reduction of Colorado River flows ranging from 5 to 50% by mid-century".[10]	78. Figure 3-4 was revised in the FEIS to include 2002 as the lowest flow year. An additional figure was not added showing average flows from 1950 through 2008 and the lowest flow year (2002) since Figure 3-4 was intended to illustrate the wide range in average flows for different time periods. The scale of Figure 3-4 is sufficient to discern that average flow rates have decreased substantially for the periods from 1905 through 1949, 1950 through 1984, and 1985 through 2008.
78	**Comment.** Figure 3-4 This diagram should be edited to include 2002 as the lowest water year. The difference in flow between the two years is 10,352 af (80,360.3 af versus 70,007.6). As the figure scale does not allow for adequate discernment of the changes to low flow, an additional figure should be added showing average flows from 1950-2008, the lowest flow year (2002) as represented by USGS Windy Gap gage data, and the flow due to proposed changes from the preferred alternative.	
	Page 3-9	
79	**Comment.** Please note that the flows from the Windy Gap diversion point to the mouth of the Williams Fork River of 90 cfs is 10 cfs below the flow identified as being critical *in winter* in the Grand County Stream Management Plan, Phase II. It is 150 cfs below critical summer flow recommendations. Similarly, from the mouth of the Williams Fork River to the mouth of the Troublesome Creek, the flow of 135 cfs is 15 cfs below winter critical flows, and 115 below summer critical flows. The flushing flow recommended by the Azure Settlement is equivalent to the optimal flows recommended by the Stream Management Plan, and 300-750 cfs below that recommended for flushing flows. In 2003, 64,200 af were diverted via Windy Gap. This is 91.7% of the annual flow in the 2002 water year.	79. Comment noted. This section of the FEIS is describing the existing environment and current operating conditions. If the WGFP is constructed, the Windy Gap project would continue to be operated in accordance with the Azure Agreement and Supplement to the Azure Agreement, and the Windy Gap water rights decree which was made absolute by the State of Colorado in 1990. Additionally, unless it is modified or changed, the Windy Gap Project will continue to operate in compliance with the agreement between the Subdistrict and the Colorado Division of Wildlife dated June 23, 1980. Additionally, the Subdistrict developed a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E) that includes additional flushing flows under certain conditions.
	Page 3-10	
80	**Comment.** If no historic gage flow data is available, how can Reclamation plan to "bypass native flows" in the Rockwell Mueller or Jasper East areas?	The total annual Colorado River flow at Windy Gap in 2003 was 111,322 AF, and Windy Gap's diversion rights were in priority during April, May, and June of 2003. In 2002, when the annual flow volume was much less, Windy Gap could not divert.
	Section 3.5.1.5 East Slope Surface Water Hydrology	
81	Page 3-11 **Comment.** figure 3-6 Please attach year labels on the X axis.	80. The methodology for calculating or gaging native inflows to Rockwell/Mueller and Jasper East Reservoir to determine required bypasses has not yet been determined. The final methodology for calculating or gaging inflows to these reservoir sites would be determined with input from the SEO and Division of Water Resources.
82	**Section 3.5.2.2 Method for Effect of Analysis** Page 3-14	81. Apparently the x-axis labels did not print correctly in the DEIS. This was corrected in the FEIS.
	[10] Colorado School of Mines Magazine, Summer 2008	

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 42	82. Comment noted. See response to Comment No. 179.
82	**Comment.** Use of a daily time step model would not require "disaggregation" to get to daily diversions.	83. The 10% diversion shrink charged upon introduction of Windy Gap water to the C-BT Project is provided for in paragraph 1.(h) of the "Amendatory Contract for the Introduction, Storage, Carriage, and Delivery of Water for the Municipal Subdistrict, Northern Colorado Water Conservancy District, Colorado-Big Thompson Project, Colorado," Contract No. 4-07-70-W0107, between the Municipal Subdistrict, Northern Colorado Water Conservancy District, the United States of America, and the Northern Colorado Water Conservancy District (Carriage Contract). The "diversion shrink" provided for in paragraph 1.(h), as well as the "carry-over shrink" provided for in paragraph 11.(a), is intended to offset losses incurred by the C-BT Project due to the introduction, storage, carriage, and delivery of Windy Gap water. These losses include, but are not limited to, additional evaporation associated with storing Windy Gap water in Granby Reservoir and conveyance losses associated with delivering Windy Gap water via C-BT facilities. Diversion shrink does not create an expanded use of the C-BT decree. Section 3.5.2.3 of the FEIS was revised to further explain diversion shrink.
	Section 3.5.2.3 Facilities and Stream Segments Affected by Windy Gap Operations	
	Page 3-14	
83	**Comment.** The DEIS notes that Windy Gap water that is pumped into Granby Reservoir is assessed a 10% shrink charge upon introduction. It appears that this shrink is then attributed to the CB-T decree. This operation appears to create an expanded use of the C-BT decree, because the C-BT is not decreed for diversion at Windy Gap, but water diverted from Windy Gap is attributed to C-BT. This needs to be explained further and the decree that authorizes this operation referenced.	
84	**Comment.** We are not aware of any decree for either Windy Gap or C-BT that allows an exchange of C-BT water with Windy Gap water that is called an "instantaneous delivery." This needs to be explained and the legal authority for doing so under Colorado law referenced. It appears that the fiction of "instantaneous delivery" will not be operated under the WGFP, but rather water would be routed to Chimney Hollow Reservoir.	84. The agreement that allows an exchange of C-BT water with Windy Gap water to facilitate delivery of Windy Gap water (termed "instantaneous delivery") is the Carriage Contract. Paragraph 10.(a) of this agreement states that "Deliverable Subdistrict Water shall be considered to be available at any time or place for delivery at any point in the Project System, and tracking or accounting for Subdistrict Water through each point in the Project Works shall not be required, so long as an accounting for the credit or deficit position, in terms of total AF of Subdistrict in the Project System, is maintained at all times." This method of delivering Windy Gap water has been used since the Windy Gap Project began operating in 1985, and would continue to be used under the WGFP for WGFP Participants and for Windy Gap unit holders not in the firming Project, including the City of Boulder and Town of Estes Park. However, Windy Gap water also would be delivered to WGFP Participants via direct releases from Chimney Hollow Reservoir using C-BT conveyance facilities. Instantaneous delivery is described in Section 3.5.2.3 in the FEIS. No court decree is required for this exchange.
	Page 3-15	
85	**Comment.** Willow Creek should not be affected by WGFP, but it apparently is. This appears to be the result of an undecreed exchange of Windy Gap water to Willow Creek Reservoir, which causes Willow Creek Reservoir rather than Granby Reservoir to spill. This operation makes no sense and needs to be explained. The DEIS needs to disclose the decree that authorizes this exchange of Windy Gap water to Willow Creek Reservoir.	
	Page 3-16	
86	**Comment.** The DEIS states that "C-BT water delivered would not exceed current amounts." The impact analysis in the DEIS is based on this assumption. Therefore, the Carriage Contract must include a condition that limits deliveries of C-BT water through the Adams Tunnel to current amounts. We have proposed such a permit condition in our *404 Permit Comment Letter*.	
	Section 3.5.2.5 C-BT and Windy Gap Project Operations and Diversions	
87	Pages 3-19 through 3-21	

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 43	85. Windy Gap water may be spilled from Willow Creek Reservoir as a result of an un-decreed exchange that is provided for in paragraphs 1.(g) and 11.(c) of the Carriage Contract. When Willow Creek pumping would cause a spill of Granby Reservoir, Windy Gap water is exchanged from Granby Reservoir to Willow Creek Reservoir (with an equal amount of C-BT water exchanged from Willow Creek Reservoir to Granby Reservoir) and subsequently spilled from Willow Creek Reservoir. This operation, which occurs infrequently, increases efficiency by reducing pumping energy (and the associated costs) that would be necessary to pump water from Willow Creek Reservoir to Granby Reservoir and then spill it. No court decree is required for this exchange.
87	**Comment.** Tables 3-2, 3-3 and 3-4 erroneously lists Windy Gap Diversions at 36,532 af (average) at 7,804 af (dry) and 38,512 af (wet). Actual diversion records are much less in all types of years. See General Comments Section, above.	86. Reclamation will continue to operate the C-BT Project in accordance with the water rights for the C-BT Project.
88	**Comment.** Table 3-2 purports to compare average annual flow and diversion amounts. This is an example of how it is deceiving to present Windy Gap Diversions of 36,532 af as "existing conditions" rather than actual diversion when deriving differences and percentage of change. In fact *actual* diversions at Windy Gap Reservoir are show in Table 3, p. 22 of the Water Resources Technical Report. Those diversions averaged 11,080 af. That amount is the "existing conditions;" that is the amount of effect on the river since Windy Gap came on line. It is not some hypothetical modeled amount that created the existing conditions. Accordingly when one puts in the actual diversions of Windy Gap, the comparison looks much different and the impacts are staggering. See General Comments Section, above. Table 3-2 should be revised:	87. See responses to Comment Nos. 1 through 5.
		88. See responses to Comment Nos. 1 through 5.
89	Page 3-21 **Comment.** (also 3-25 and elsewhere). The assertion is regularly made that Windy Gap would not divert during dry years, yet there are tables that show diversions in dry years. Correct this conflict or limit diversions to dry years as a condition of the Carriage Contract.	89. Windy Gap would not divert or would divert minimal amounts in dry years like 1954, 2002, and 2004. Section 3.5.2.5 of the FEIS states that in dry years, average annual Windy Gap diversions would be relatively low compared with average and wet year diversions, and there would be no difference among the alternatives and existing conditions. Section 3.5.2.5 also includes an explanation that the dry year Windy Gap diversion shown in Table 3-7 in FEIS is an average of the five driest years. Not all of the dry years included in that average (1954, 1966, 1977, 1981, and 1989) are as severe as 1954, which is why the average dry year diversion is greater than zero. Section 3.5.2.5 in the FEIS was revised to clarify Windy Gap diversions in dry years.
90	Page 3-24 **Comment.** Please discuss nocturnal pumping scheme for Windy Gap which minimizes power cost during pumping and maximizes power generation and revenues during daylight hours when power demands are high. How will the WGFP influence this	90. The Windy Gap Project does not operate with a "nocturnal pumping scheme." Windy Gap pumps are operated to match inflows to Windy Gap Reservoir while maintaining required flows downstream of the diversion point and would continue to be operated in this manner with the WGFP. The new Windy Gap pumping contract with Tri-State Generation & Transmission will provide an incentive for off-peak (nighttime) pumping during the months of July and August. However, because Windy Gap water is delivered to the east slope by exchange, and because increases in Windy Gap deliveries as a result of WGFP are small in comparison to the total amount of water delivered through the Adams Tunnel (<5-10%), operation of Farr Pumping Plant is not expected to change appreciably.

Location	Existing Conditions		Proposed Action	
	Avg Ann Flow	Avg Ann Flow	Diff	Percent diff
Windy Gap Diversions **(modeled)**	36,532 af	46,084 af	9,552 af	26% increase
Windy Gap Diversions **(actual)**	11,080 af	46,084 af	35,004	316% increase

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 44	Windy Gap water is conveyed through Farr Pumping Plant to Shadow Mountain Reservoir before delivery to the East Slope. However, because Windy Gap water is delivered through "instantaneous delivery" and because increases in Windy Gap deliveries through Adams Tunnel as a result of the WGFP are small in comparison to the total amount of water delivered through the Adams Tunnel (<5-10%), operation of the Farr Pumping Plant is not expected to change appreciably.
90	schedule? A discussion of this schedule here would be appropriate to make way for the related impacts to water quality in section 3.8.	91. See responses to Comment Nos. 1 through 5.
91	**Section 3.5.2.6 West Slope Streams and Existing Reservoirs** Page 3-26 **Comment.** The DEIS states that average annual flows below Windy Gap would decrease 14% from existing conditions. As stated numerous times, the so called "existing" conditions do not reflect actual diversions by Windy Gap, which are much less. In fact, the average annual flows will decrease by 26% . See General Comments Section, above.	92. The hydrograph was not split into two time periods because there would be no changes in flow between the action alternatives, No Action Alternative, and existing conditions from September through November when average flows are less than 200 cfs. Changes in flow below 200 cfs only occur in August and are on the order of 10 to 30 cfs, which can be determined from Table A-9 in Appendix A of the FEIS. Table A-9 presents average monthly changes in flows in the Colorado River above Windy Gap.
92	**Comment.** Figure 3-12. Please break hydrograph into two time periods so that changes in flow below 200 cfs can be distinguished.	
93	Page 3-27 **Comment.** Figure 3-13. Please break hydrograph into two time periods so that changes in flow below 200 cfs can be distinguished.	93. The hydrograph was not split into two time periods because there would be no changes in flow between the action alternatives, No Action Alternative, and existing conditions from September through November when average daily flows are less than 200 cfs. Changes in flow below 200 cfs only occur in August and are on the order of 10 to 50 cfs, which can be determined from Table A-10 in Appendix A of the FEIS. Table A-10 presents average monthly changes in flows in the Colorado River below Windy Gap.
94	**Comment.** The table on this page shows that the Proposed Action would increase the number of days that flows dropped below 100 cfs over the 47 year study period from about 1.8 days per year in August to 2.9 days. This 47 year period does not include the extended drought conditions and lowest flow year on record, so it underestimates the true number of low flow days. According to the Grand County Stream Management Plan the critical/minimum cfs for that stretch is 250 during the summer, optimal is 450 cfs. Critical flows are defined as "that flow below which habitat is lost at the greatest rate." (GC SMP, March 2008, pA-4).	94. The purpose of Table 3-13 in FEIS is to present the number of days that flows below Windy Gap Reservoir would be less than 100 cfs as a result of Windy Gap diversions. In May and June, the number of days that flows are less than 100 cfs would not change under all the alternatives. In July and August, the greatest increase in such days would occur in August, but the total number of days of less than 100 cfs flows would be about only about 10% of the time during August. There are days that flows below Windy Gap are less than 100 cfs when Windy Gap is not diverting. For example, in 2002 flows below Windy Gap were less than 100 cfs for the majority of August, but that was not a result of Windy Gap pumping. Inclusion of the year 2002 would not increase the number of days that Windy Gap pumping causes flows to be less than 100 cfs; therefore, Table 3-7 does not underestimate the number of low-flow days caused by additional pumping under the action alternatives.
95	**Comment.** Tables 3-7 and 3-8. The DEIS should state where these figures are derived. They might be helpful once corrected to determine the low flows in the critical reach below Windy Gap. Changes in stream flows should been shown in cfs as reported for increases in east slope streams. (Tables 3-9, 3-10, 3-11.) Similar tables in cfs should be prepared for West Slope streams where the decreases (impacts) will occur.	
96	Page 3-28 **Comment.** Willow Creek is already seeing below standard levels of dissolved oxygen for its stream classification. The DEIS must describe how the reduction in flows will exacerbate this situation.	

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		The model study period from 1950 through 1996 is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. See response to Comment No. 7 regarding the adequacy of the study period. The Aquatic Resource Technical Report uses daily streamflow data to determine impacts. These flow data included natural flows, existing conditions, and the alternatives for average, wet, and dry hydrologic conditions. In contrast, the Grand County SMP used only the weighted usable area graphs to determine the preferred flow range (optimum to critical minimum) without regard to whether that flow was available or could be maintained under either natural or regulated conditions. Optimal flows, as defined by weighted usable area, rarely exist, even under natural conditions. The flow habitat relationship is developed from the theoretical response of fish habitat use to stream channel configuration and not from a flow regime. The more appropriate analysis and the approach that is consistent with guidelines for application of the instream flow methodology is to use a hydrologic and habitat time series as applied in the Aquatic Resource Technical Report (Miller Ecological 2010) and summarized in the FEIS. 95. WGFP model monthly output that was disaggregated to daily data for each alternative was used to derive the values in Tables 3-7 and 3-8 in DEIS. The source of data for these tables was added to Section 3.5.2.6 in the FEIS. Changes in streamflows are shown in cfs for West Slope streams in Appendix A (see Tables A-8 through A-14). Tables (similar to Tables 3-9, 3-10, and 3-11) that show flow changes based on a comparison with historical gage data were not included for West Slope streams because the analysis of effects from the action alternatives was based on a comparison of modeled existing conditions to historical conditions (see response to Comment No. 1). Tables 3-9, 3-10, and 3-11 in the DEIS were included for East Slope streams because those streams were not included in the WGFP model. Therefore, the best available information for assessing impacts to East Slope streams was historical gage data because modeled existing conditions streamflows were not available. 96. Additional discussion on Willow Creek was added to Section 3.8.1.3 of the FEIS.

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97	Page 3-30 **Comment.** Please explain what "reintroduction shrink" means; what percentage is charged in each East Slope firming reservoirs; which decree it is charged to; and the basis for a reintroduction shrink.	97. A diversion shrink of 10% is paid when Windy Gap water is introduced into the C-BT system per the Carriage Contract. Shrink would be paid when Windy Gap water is initially diverted to Granby Reservoir and exchanged into Chimney Hollow Reservoir or delivered to Dry Creek Reservoir. Once in Chimney Hollow or Dry Creek Reservoir, Windy Gap water would no longer be in the C-BT system. When Windy Gap water is released from those reservoirs for delivery to the Participants, it would be reintroduced into the C-BT system; therefore, based on the Carriage Contract, the Subdistrict would be charged an additional 10% shrink, which was termed "reintroduction shrink." Reintroduction shrink only applies to East Slope firming reservoirs including Chimney Hollow and Dry Creek reservoirs. Diversion shrink would not be paid on Windy Gap diversions to Jasper East or Rockwell/Mueller Creek Reservoir. Diversion shrink would only be paid once deliveries are made from these West Slope reservoirs and introduced into the C-BT system for the first time. Reintroduction shrink would be charged to the Windy Gap Project and allocated to the C-BT Project for storage in Carter Lake or Horsetooth Reservoir or delivery to C-BT users. Section 3.5.2.6 in the FEIS was revised under the subsection Granby Reservoir to further describe reintroduction shrink. An amendment to the Carriage Contract or an additional contract would be required to implement one of the WGFP action alternatives. The final terms and conditions related to reintroduction shrink would be determined through negotiations on the amendment or new contract.
98	**Section 3.5.2.9 Windy Gap Firming Project Yield** Page 3-41 **Comment.** Table 3-13. The WGFP does not satisfy the purpose and need statement. The firm yield reported is 26,600 af rather than 30,000 af. The WGFP also does not meet the Purpose and Need for Middle Park's firm yield of 3,000 af. Instead, it is reported that only 429 af of firm yield is generated for Middle Park.	98. The purpose and need statement is a goal for the project. There is no requirement that the project exactly meet the goal. The purpose and need for Middle Park is to provide 3,000 AF of storage, not 3,000 AF of firm yield. Although the target firm yield was not reached by any of the alternatives, this does not diminish the need for the water or value of the project.
99	**Section 3.5.3 Cumulative Effects** Page 3-42 **Comment.** The additional foreseeable actions described for Section 2.8 above need to be added to the cumulative impacts section.	99. See response to Comment Nos. 66 and 67.
100	**Section 3.5.3.1 Summary Comparison of Hydrologic Changes** Page 3-42 **Comment.** The cumulative impacts section demonstrates the need to use the same model to identify the impacts of the WGFP and the Moffat Collection System Expansion project. There are a number of assumptions on how the Denver Water Board may operate. Use of the Denver Water Board's daily point flow model would ensure those assumptions are accurate and applied to both projects. For example, when the Big Lake Ditch lease expires, that would take the call off of the Denver Water Board's Jones Pass Tunnel, and more water is likely to be diverted out of the Williams Fork River by the Denver Water Board, PLUS there is the lack of return flow down Reeder Creek. The timing of when those impacts occur is also critical. It is not adequate to look at the impacts on an average annual basis.	
101	**Section 3.5.3.2 Facilities, Streams and Lakes Affected by Reasonably Foreseeable Actions** Pages 3-43 through 3-45	

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		100. A significant effort was made by the Corps and Reclamation to coordinate the modeling efforts for the WGFP and Moffat Project EISs. Prior to initiating the modeling of EIS alternatives and cumulative effects for the Moffat Project and WGFP, the lead federal agencies for the EISs convened a process to compare hydrologic modeling approaches and tools. This process included reviews of Windy Gap diversions, Granby Reservoir, and Adams Tunnel flows simulated in PACSM and Moffat Project and Roberts Tunnel flows simulated in the WGFP models. This process also included a detailed comparison of flows in the vicinity of the projects' diversions, which was summarized in the technical memorandum, *Comparison of Fraser River flows simulated in the WGFP CDSS model with those simulated in PACSM (Boyle 2005*). Model data were shared between the two projects to ensure that the WGFP and Moffat Project were reflected in a similar manner in each model. As a result, assumptions regarding how Denver Water would operate the Moffat Project are accurately reflected in the WGFP model. The cumulative effects analyses for the WGFP and Moffat Project also considered the same reasonably foreseeable water-based actions such as the expiration of the Big Lake Ditch contract. The cumulative effects analysis was conducted based on an analysis of hydrologic changes on an annual, monthly, and daily basis. Section 3.5.2.2 of the FEIS was expanded to include a discussion of the coordination of hydrologic effects assessments for the WGFP and Moffat Project EISs. The analysis of cumulative effects considered both average annual and monthly values (see Tables A-23 through A-45 in Appendix A of the FEIS). Similar analyses conducted using daily data for the direct effects analysis also were conducted for the cumulative effects analysis.

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101	**Comment.** The comparisons in Tables 3-14, 3-15, 3-16, are wrong because they start from the wrong baseline for Windy Gap diversions of existing conditions of 36,532 af rather than the actual diversions of 11,080 af. See General Comments Section, above.	102. The Shoshone call reduction is analyzed as a reasonably foreseeable action in the DEIS and in Section 3.5.3.3 of the FEIS under the subsection Colorado River and in Section 8.4.2.6 of the WGFP Water Resources Technical Report. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. In 2003, Windy Gap diverted approximately 7,850 AF out of a total diversion of 64,200 AF due to the Shoshone call reduction. Windy Gap diversions were high in 2003 primarily because conditions in the Upper Colorado River were not dry as opposed to the relaxation of the Shoshone call. Windy Gap did not benefit from the Shoshone call reduction in 2004 because other factors, including instream flow requirements below Windy Gap, constrained diversions. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the WGFP would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked.
102	Page 3-47 **Comment.** The Shoshone call reduction needs to examined more closely. In fact, when that agreement went into effect in 2003, that was also the greatest year of diversion by Windy Gap of 64,200 af. The report is replete with statements that Windy Gap will not divert during a dry year, but there is no analysis of the effects from the Shoshone call reduction.	
103	**Section 3.5.3.4 West Slope Streams and Existing Reservoirs** Page 3-50 **Comment.** Figure 3-25 excludes the months of December through March. In addition, the resolution is inadequate in the months shown where flow is below 200 cfs to be able to distinguish one condition from another, rendering the figure relatively useless for understanding much of the water year.	103. Figure 3-25 in the DEIS excludes the months of December through March because flow changes in those months were minimal and averaged 4 cfs or less. Changes in flow below 200 cfs that occur in April and August and are on the order of 10 to 30 cfs, which can be determined from Table A-31 in Appendix A, presents average monthly changes in flows in the Colorado River above Windy Gap.
104	Page 3-51 **Comment.** Figure 3-26 excludes the months of December through March. In addition, the resolution is inadequate in the months shown where flow is below 200 cfs to be able to distinguish one condition from another, rendering the figure relatively useless for understanding much of the water year.	104. Figure 3-26 excludes the months of December through March because flow changes in those months were minimal and averaged 4 cfs or less. Changes in flow below 200 cfs that occur in April and August are on the order of 10 to 30 cfs, which can be determined from Table A-32 in Appendix A, presents average monthly changes in flows in the Colorado River below Windy Gap.
105	Page 3-52 **Comment.** The potential consecutive dry year reduction in the surface elevation of Granby Reservoir of 33 feet means that when compared to the average depth at full pool of 74 feet, the reduction will be 44%. When compared to the maximum depth at full pool of 221 feet, the reduction will be 15%. With such a significant potential reduction, the inclusion of a bathymetric map, with an evaluation of regions of the reservoir where water levels might be reduced significantly enough to prohibit access is necessary. In addition, a calculation of the potential reduction in water surface also would be instructive.	105. Resource evaluations relied on average monthly surface area and elevation data for Granby Reservoir to analyze environmental effects. Figures 35, 36, and 55 in the Water Resources Technical Report present Granby Reservoir elevations for direct effects and cumulative effects analyses associated with the WGFP. Summaries of average monthly Granby Reservoir elevations and surface area for average, wet, and dry conditions are presented in Appendix A of the FEIS in Tables A-21, A-22, A-44, and A-45. A bathymetric map was not generated since it was not needed for the effects analysis. The maximum reduction in surface area associated with WGFP operation would be approximately 1,680 acres, which corresponds with the maximum reduction in surface elevation of 33 feet.

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 47	A mitigation measure was proposed that would modify the manner in which prepositioning is operated with Chimney Hollow and Granby reservoirs. C-BT deliveries to Chimney Hollow Reservoir would be reduced in years that Granby Reservoir is forecasted to fall below elevation 8,250. This would reduce water level fluctuations attributable to the WGFP and raise water levels in Granby Reservoir particularly in dry years. See Section 3.5.4 in the FEIS for a discussion of this mitigation measure.
106	**Comment.** Please develop area-elevation curves for Granby Reservoir under different scenarios, similar to what was done for the Shadow Mountain Reservoir drawdown, showing reservoir surface area versus reservoir stage or area of reservoir bed exposed versus reservoir stage.	106. Resource evaluations relied on average monthly surface area and elevation data for Granby Reservoir to analyze environmental effects. Figures 35, 36, and 55 in the Water Resources Technical Report present Granby Reservoir elevations for direct effects and cumulative effects analyses. Summaries of average monthly Granby Reservoir elevations and surface area for average, wet, and dry conditions are presented in Appendix A of the FEIS in Tables A-21, A-22, A-44, and A-45. Effects to reservoir recreation were evaluated by comparing changes in surface area and water levels under the alternatives compared to existing conditions. Additional area-elevation curves for Granby Reservoir were not generated since they were not needed for the effects analysis.
107	**Comment.** Please develop a figure to project future Granby Reservoir elevations under consecutive dry year, moderate, and wet year scenarios that can be compared side-by-side with, or that also includes historical elevations like those shown in figure 3-6, and that makes clear how the historical elevation fluctuations might be exacerbated.	
108	**Comment.** Reductions in water surface elevation, water surface area, increases in exposed reservoir sediment surface areas call for accompanying discussions and mitigation in sections concerning water quality (3.8), recreation area, access to boat ramps (3.19), and air quality (due to potential dust issues) (3.16), and probably other sections as well.	
109	**Comment.** All of these same issues may also be true for Willow Creek Reservoir and should be discussed both here and in other appropriate sections in the document.	107. Figure 55 in the Water Resources Technical Report presents monthly surface elevations for Granby Reservoir for the entire study period for the Proposed Action and existing conditions. The 47-year study period includes consecutive average, wet, and dry years. For example, the existing study period includes the mid-1950s drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. Figure 55 can be compared side-by-side to Figure 3-6 in the FEIS. Figure 55 shows that elevation fluctuations under the Proposed Action would increase compared to existing conditions and historical fluctuations due primarily to prepositioning C-BT water in Chimney Hollow Reservoir.
110	**Section 3.5.4 Proposed Mitigation.** Page 3-55 **Comment.** See the discussion of mitigation in the General Comments Section, above. Numerous additional mitigation conditions are required as detailed in the *404 Permit Comment Letter*.	
111	**Section 3.6.1.3 West Slope Ground Water Hydrology and Quality** Page 3-56 **Comment.** Water quality results are reported from: 1) Apodaca and Bails 2000, a survey study that looked at water quality in 12 Colorado counties in addition to Grand County. Sampling sites in Grand County were 5, maybe 6 in number: 2 on the upper Fraser, 2 in the extended Grand Lake area, 1 at the confluence of the Colorado River with the Blue River, and one, potentially in Grand County, on the Blue River. 2) Topper 2003, a survey of ground water in the entire state of Colorado, and *which relies upon data from the Apodaca and Bails article* for the upper Colorado River 3) Bauch and Bails 2004, which studied the Fraser River watershed with sites located only as far downstream as Tabernash. Based upon these resources it is difficult to understand from where water quality values specific to the Colorado River in the study area in question may have come	108. A mitigation measure (modified prepositioning) is included that will minimize adverse water level fluctuations in Granby Reservoir attributable to the proposed project and prepositioning As a result, water levels in Granby would remain higher, particularly during dry years, compared to the originally proposed prepositioning. Higher water levels would reduce effects on boat ramp access and exposed shoreline. The potential dust from additional shoreline exposure in dry years would not be substantially different than current conditions. The effects of modified preposition is discussed in the mitigation section for applicable resources in the FEIS. 109. There would be no impact to Willow Creek Reservoir under any of the alternatives.

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111	from. The Topper publication states that ground water quality in the Colorado River *can vary widely*.	111. About 10 wells in the study area sampled by the USGS were evaluated in addition to information from the three referenced reports. This reference was added to Section 3.6.1.3 of the FEIS.
112	**Comment.** The discussion of impacts to ground water is inadequate. For example, there is no analysis of potential degradation and influence from coal formations which extend just west of the Granby area, nor analysis of the influence from the hot springs in Hot Sulphur Springs. Also omitted is a discussion of potential degradation from leaking underground storage tanks which have been identified in Grand Lake, Heeney, Hot Sulphur Springs, Kremmling, Parshall, and Winter Park (Colorado Ground Water Atlas 2000). Any discussion of impacts to ground water quality from reduced flows in the Colorado River are missing. In order to discuss ground water quality in the study area with any degree of certainty a study would have had to have been conducted, because without such a study, the data is entirely too sparse to draw any reliable conclusions.	112. Ground water discharge from features such as coal formations and hot springs would not be affected by changes in Colorado River stage. The various bedrock ground water systems are not hydraulically connected to the river other than they ultimately discharge to the Colorado River because the river basin is the lowest topographic feature in the region. Assuming the ground water from these features is of a poorer water quality than that of the Colorado River, they currently contribute to the overall quality of the river, which has been measured and described in the EIS. The discharge to the river and quality of the hot springs at Hot Sulphur Springs has been discussed in the EIS. With respect to leaking underground storage tanks, they are the responsibility of the Colorado Division of Oil and Public Safety (OPS) and the responsible party that owns the tank. Any leaking tanks should be an OPS priority for removal and remediation.
113	**Section 3.6.2.3 Ground Water Hydrology** Page 3-57 **Comment.** Please quantify the "temporary changes in ground water levels near the reservoirs" that might be expected due to "the occasional large decreases in reservoir elevations during a series of dry years" and account for the number of homeowners who would lose access to their water supplies, if any.	113. Because Granby Reservoir is the lowest local topographic feature, ground water moves toward the reservoir. Therefore, the water level in many wells is not subject to fluctuation as a result of reservoir level, but rather typical seasonal changes in recharge. A review of water level information for three USGS wells immediately surrounding Granby Reservoir conducted for the EIS found that the ground water table elevation is higher than that of the reservoir, indicating that ground water is flowing to the reservoir (i.e., the reservoir is gaining water from the surrounding aquifer). Depending on the geology, however, there may be areas around the lake where ground water levels are controlled by reservoir level because they are in low-lying areas or in alluvium connected to the lake. The reservoir currently experiences large stage change due to varying runoff and water deliveries. During the 2002 drought period, the lake level was reported to be at its lowest level since filling in 1950. No published reports of water shortages in water supply wells from the 2002 drought period were found. If this is correct, it is confirmation that most local water supplies are from deeper formations that are somewhat buffered from large variations in recharge from precipitation and are not affected by large changes in reservoir water levels. Water levels in wells may decrease during periods of drought or lowered reservoir levels, but water apparently can still be pumped to the surface for use.
114	**Comment.** It is difficult to understand how the potential consecutive dry year reduction in the surface elevation of Granby Reservoir of 33 feet mentioned on p3-52 coincides with the statement "The historical variation in the lake surface elevation of Granby Reservoir (nearly 90 feet) is larger than the expected change due to any alternative." How can this variation be accounted for with a mean reservoir elevation of 74 feet? Again, a thorough examination of the issues identified in the comment for p3-52 are required to understand the increases in variations.	
115	**Section 3.6.2.4 Ground Water Quality** Page 3-58 **Comment.** In section 3-10 the statement is made that the Colorado River is a gaining river throughout most of the study area. The ground water section would be a good place to discuss this as well, in particular where the Colorado River is *not* a gaining river, and under what conditions. To say that changes in river stage and hence ground water levels,	

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		Hundreds of private water wells are around the perimeter of Granby Reservoir. Of the 632 SEO wells listed as having been constructed, 138 are domestic water wells, 23 are commercial wells, 446 are household water use wells, 10 are municipal water wells, 5 are listed as "other" use, and 10 have no listing associated with use. Of these 632 wells, 44 were installed with the top of the well screen at less than 50 feet below ground surface, and 200 wells have no screen depth information listed. Of the 200 wells with no screen information listed, 59 have a listed total well depth of less than 100 feet. Additional information on effects of the project to these wells was added to the FEIS in Section 3.6.2.3. 114. Figure 3-6 in the EIS shows that water levels in Granby Reservoir have fluctuated historically by nearly 90 feet. The consecutive dry year reduction in Granby Reservoir elevation is the amount attributable to the WGFP Proposed Action. 115. Because the Colorado River is the lowest topographic feature in this part of Colorado, by standard hydrologic principles, bedrock ground water discharges to the Colorado River. The river may lose water for short distances to the alluvium in localized areas, but ultimately, this ground water would discharge back to the Colorado River some distance downstream from the point of loss. Bedrock ground water of varying water quality currently discharges to the river alluvium and eventually the river and the current water quality reflects this combination of surface water and bedrock ground water. Windy Gap diversions would not affect ground water discharge to the river and, therefore, would not change the current input of dissolved material to the river. See response to Comment No. 116. Section 3.6.2.4 of the FEIS was revised to provide a more detailed discussion of this issue.

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115	due to the project, especially with attenuation over distance, would be insignificant compared to what currently exists ignores the fact that ground water quality in certain regions of the study area may already be unacceptably degraded. Without having accurate measurements of the current condition (measured water quality parameters), it is impossible to understand what "some changes in water quality that could increase as much as 38 to 45 percent" means.	116. Water quality in alluvium adjacent to the Colorado River is currently dependent on many processes, including the rate and location of discharge from bedrock aquifers, water quality of bedrock ground water, and recharge from the Colorado River. Relatively small predicted stage changes in the Colorado River due to Windy Gap diversions would not impact bedrock ground water quantity or quality, or its influence on alluvial water quality. The predicted changes in river water quality due to the WGFP would influence alluvial water quality where river water recharges the alluvium. However, because the Colorado River is a gaining river, all bedrock and alluvial ground water would eventually discharge to the river. All alluvial ground water returns to the river where the thickness of the alluvium essentially reduces to zero, such as at the mouths of various canyons along the river. Refer to technical memos regarding the recharge relationship between predicted stage changes in the river and alluvial ground water (Hydros Consulting 2011a, 2011b, and 2011c). Section 3.6.2 of the FEIS was revised with the above information.
116	**Comment.** "There may be some changes in water quality that could increase as much as 38 to 45 percent in some parts of the Colorado River. Similar changes in alluvial ground water quality along the Colorado River would be expected." The preceding statements suggest that ground water quality has been evaluated only as an extrapolation of surface water quality. This is inadequate because the effects to ground water quality are likely to be more strongly felt due to increasing influence from bedrock aquifers and decreasing contributions from recharge or any potential periods when the stream might switch to a "losing stream" due to excess flow. The requisite "hard look" requires an evaluation of carefully selected ground water samples on a regular basis.	
	Section 3.7 Stream Morphology and Floodplains.	
117	**Comment.** The DEIS recognizes the need for channel maintenance flows ranging from 80 percent of 1.5-year discharge to the 25-year peak flow (p3-60). These flows maintain the physical characteristics of the river channel, banks and floodplain and to maintain unimpaired flow in the channel. In addition the channel will need periodic flushing flows to remove sediment and accumulated interstitial debris. These are two different functions.	117. Comment noted.
118	**Comment.** Page 3-62 of the DEIS establishes the channel maintenance flows as the 2-year peak discharge (i.e. the lower end of the range previously identified), which the DEIS equates to about 1,240 cfs at Hot Sulphur Springs. The DEIS then indicates that under existing conditions this necessary channel maintenance flow is exceeded about 4% of the time, and with WGFP this would be reduced to about 3% frequency of exceedance, and a similar analysis for cumulative effects. The PDEIS concludes this change is about 1% less than existing conditions and so is a minor change and not an impact. This conclusion is completely unsupported. (1) A change from 4% exceedance interval to a 3% exceedance interval is a 25% change, so describing it as occurring 1% less frequently is grossly inaccurate.	118. (1). That is correct—the flow duration curve for Hot Sulphur Springs does show a 25% decrease in the frequency of flows of 1,240 cfs (the 2-year flow) 3% to 4% of the time. However, the flow duration curves show that for flows exceeding 1,240 cfs, the decrease in frequency of occurrence would be less and become nearly the same as existing conditions for the highest flows. According to the channel maintenance flows analysis, the range of channel maintenance flows (80% of the 1.5-year flow to the 25-year flow) would occur about 1% less frequently under the Proposed Action than existing conditions, and the duration of such flows in years when channel maintenance flows occur could be slightly longer. Section 3.7.2.3 of the FEIS was revised to provide additional discussion on channel maintenance flows. Figures 3-34 to 3-37 were added to Section 3.7.2.3 to show the changes in channel maintenance flows at Hot Sulphur Springs and Kremmling under the alternatives.

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118	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 50 (2) The 2-yr peak discharge (1240 cfs) is based the current flow levels, not those that initially formed the channel, and so the flow criteria used is irrelevant and the conclusion is flawed. (3) This issue is dismissed (p3-60) because aerial photos from the 1970's, 1990's and 2005 indicate only minor channel changes in river morphology, and the fact that the channel is currently fairly stable in spite of significant C-BT that started in 1947. The DEIS also dismisses the need for evaluation channel maintenance and flushing flows between Granby Reservoir and Windy Gap and the potential WGFP impacts from changes to these flows because flows in this reach are "controlled by instream flows; therefore, it is difficult to define a range of channel maintenance flows based on peak flow events" (p3-63). (4) No mitigation is proposed (p3-65); we assume this is because the proposed action will maintain the existing requirement for 450 cfs sediment flushing flow for 50 hours once every three years (p 3-62). Flushing flows are different than channel maintenance flows.	(2). The task of the EIS is to compare the effects of the project alternatives to existing conditions and no action, not to conditions that existed more than 100 years ago prior to the beginning of human impacts on the flows of the upper Colorado River. (3). Several methods were used to evaluate affects to stream morphology and sediment transport and, therefore, the issue was not simply dismissed. Please see Section 3.7.2.3 of the FEIS. Figures 3-34 to 3-37 were added to this section to show changes in channel maintenance flows at Hot Sulphur Springs and Kremmling under the alternatives. In addition, an analysis of shear stress values for the Colorado River was added in Section 3.7.2.3 of the FEIS. For the Colorado River below Granby Reservoir, Table D-4 in the Water Resources Technical Report provides information on the magnitude, frequency, and duration of spills. Spills would continue to be sufficient to maintain channel capacity, transport sediment, and provide periodic scouring. (4). This is correct. Unless it is modified, flushing flows in accordance with the MOU between the Subdistrict and Colorado Division of Wildlife will continue to occur. Flows of 450 cfs or greater would continue to occur 23 days per year on average. See Table 3-34 of the FEIS. Larger flows would continue under the alternatives, as described in the FEIS. The analyses concluded that under the alternatives, flows would continue to be sufficient to maintain channel capacity, transport sediment, and provide periodic scouring. The Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E) includes additional flushing flows.
119	**Section 3.7.1.4 West Slope Stream Morphology and Sedimentation** Page 3-60 **Comment.** The statements that the Colorado River has continued to convey sediment without aggradation or degradation of the stream channel and that the river is a morphological stable stream are not supported by any data.	119. A sediment transport evaluation was completed for the Colorado River using streamflow and shear stress values at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. The extensive data collection from Ward and Eckhardt 1981 study is still applicable. This study at four locations below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows minor changes in flows of 150 cfs or less and little change at Kremmling in flows of about 1,000 cfs or less. Additional discussion was added in Section 3.7.2.6 of the FEIS describing sediment transport. In addition, historic and recent aerial photos show minimal changes in stream morphology.
120	**Comment.** Please explain in quantitative terms what the following sentence means for this system: "The lower limit of channel maintenance flows has been defined as 80 percent of the 1.5-year discharge and the upper limit as the 25-year instantaneous peak flow."	
121	**Section 3.7.2.3 West Slope Streams** Page 3-62 **Comment.** The DEIS says that flushing flows were based on a 1981 study. This should be updated. Grand County's Stream Management Plan recommends a flushing flow of 750 to 1200 cfs for a 3 day duration with a frequency of 1 in 2 years during the May to late June period. Flushing flows are critical to transport the sediment. Tubifex worms thrive in sediment.	

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		120. Table 3-32 in the FEIS appendices provides the estimated channel maintenance flow values for the Colorado River at Hot Sulphur Springs. Eighty percent of the 1.5-year discharge is 510 cfs and the 25-year peak flow is 6,520 cfs. 121. As explained in the DEIS, Ward's 1981 study remains valid today. The "Recommended Environmental Flows" provided in Grand County's SMP are, as stated in the first sentence of the Executive Summary for the SMP, "preferred flow regimes…for aquatic habitat and other non-consumptive water use." The SMP states that "the term environmental flow regime refers to those flows that are determined to best maintain the ecological needs of the stream in relation to its fisheries." The "flushing flows" provided in the SMP are not channel maintenance flows. The SMP states that "the magnitude of each flushing flow is based upon bedload transport modeling to identify the threshold flow at which spawning gravel mobilization is initiated." However, the modeling used particle sizes much larger than fine sediment. It is the finer particles of 2 mm or less that may fill between the larger gravels and bury fish habitat. The plan also states that "the recommended flushing flows are based on [modeling] and are not yet supported by empirical evidence of gravel mobilization." Please see response to Comment No. 119. The Aquatic Resource Technical Report uses daily streamflow data to determine impacts. These flow data included natural flows, existing conditions, and the alternatives for average, wet, and dry hydrologic conditions. In contrast, the SMP used only the weighted usable area graphs to determine the preferred flow range (optimum to critical minimum) without regard to whether that flow was available or could be maintained under either natural or regulated conditions. Optimal flows, as defined by weighted usable area, rarely exist, even under natural conditions. We feel that the more appropriate approach and the approach that is consistent with guidelines for application of the instream flow methodology is to use a hydrologic and habitat times series, as applied in the Aquatic Resource Technical Report and described in the FEIS. Flushing flows were evaluated using data from the hydraulic model. The sediment transport analysis showed that fine sediment up through medium gravel would be moved by flows of 450 cfs. Larger sediment size classes would be moved by flows up to 1,200 cfs. The range of size classes moved by the 450 cfs flow would clean spawning gravels and maintain habitat for aquatic invertebrates. These conditions would maintain macroinvertebrate diversity and aquatic habitat for spawning and incubation. Fine sediment is not expected to accumulate in any greater amount than current conditions.

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122	**Section 3.7.3 Cumulative Effects** Page 3-65 **Comment.** A reduction of 1.5 in the current 4 percent exceedences rate of the 2-year peak discharge is a difference of 37.5%. Please correct and quantify reductions at the Kremmling gage similarly.	122. Section 3.7.3 of the FEIS was revised and further discussion provided to clarify impacts.
123	**Section 3.7.4 Proposed Mitigation** Page 3-65 **Comment.** The argument in the mitigation section on this page ignores the fact that stream flows are already too low for healthy channel maintenance. The preceding discussion said nothing about pool depth, interconnectivity between pools, the influence of flow volumes and channel depth on water temperatures, or refuge. The assumption that everything's fine and that the status quo will prevail is inadequate. The channels either need increased flows, or they need rehabilitation.	123. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The FWMP includes an increase in channel maintenance flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).
124	**Section 3.8 Surface Water Quality: General comments regarding issues with the DEIS modeling approach for Colorado River.** (*See also BBA Report*, Exhibit B) **Comment.** The DEIS concludes (p 3-129) that the only adverse impacts to streams in Grand County associated with WGFP diversions are an increase in stream temperatures and concentrations of ammonia, inorganic phosphorus, and total dissolved solids for the Colorado River. Proposed mitigation is to "consider increasing required bypass flows under certain water supply conditions" if it can be show that increases would result in measurable benefits to the trout fishery. Both statements are wrong. The reason the DEIS only identifies minor stream impacts in the Colorado River is because of the inappropriate choice of the steady state QUAL2K model for the purpose of evaluating changes from WGFP alternatives and issues with the input parameters used for the modeling. The use of QUAL2K to model temperature impacts demonstrates this issue. QUAL2K evaluates increases in Colorado River temperature resulting from diversion of water at Windy Gap for a single day, July 25th, and considers both the average diversion for that day, and a diversion to the point where only the 90 cfs mandatory bypass flow remains in the Colorado River below Windy Gap. According to the DEIS this approach would represent worst case conditions (DEIS page 3-92 and	124. See response to Comment No. 129.

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124	page 51, Stream Water Quality Technical Report). The conclusions from this modeling approach are flawed for many reasons including:	
125	(1) The actual result from QUAL2K is that Colorado River temperature would increase as much as 4.0 degrees to a maximum of 18.9 just upstream of the Williams Fork confluence when average stream flows (approximately 425 cfs) are reduced to 90 cfs by WGFP diversions on the single day, July 25 given median meteorological conditions. QUAL2K does not consider a more realistic extended timeframe. For example, if the temperature is predicted to increase 4.0 degrees when flows are reduced from 425 cfs to 90 cfs on July 25, then the temperature of the Colorado River will continue to increase above 18.9 several days later if river flows are maintained at minimum levels due to WGFP diversions and the meteorological conditions (air temperature and sunlight) remain relatively unchanged. Depending on daily weather conditions, there would be a gradual warming of the river downstream from Windy Gap over time, not a single spike in temperature. QUAL2K cannot handle this, a dynamic model would be more appropriate.	125. Temperature effects on the Colorado River from the WGFP were addressed in the Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). Please see Section 3.8.4 of the FEIS for a description of temperature mitigation.
126	(2) The DEIS concludes that WGFP will only increase temperature to exceed the temperature standard under worst case conditions, but this would not occur on average (p3-96). This statement cannot be supported. This statement is based on the median July temperature of 14.3 degrees as ambient conditions for input to QUAL2K. The source of this data is USGS grab samples which are collected 1 or 2 times per month (p3-67). Median data for 1 to 2 samples per month has no relevance to Colorado Water Quality Control Commission temperature standards which are determined as the Maximum Weekly Average Temperature (MWAT). Inputs to the QUAL2K model for many water quality parameters were based on the median value of measured water quality data for the period of record for July. The median value means that half of the data is greater than that value, which is why the State of Colorado defines existing quality as the 85th percentile for most parameters (5 CCR 1002-31, Section 31.5(20)).	126. The analysis of Colorado River stream temperature was revised using a dynamic temperature model rather than the QUAL2K model. However, the dynamic temperature modeling results support the conclusions from the QUAL2K modeling. In general, dynamic temperature modeling indicates that all of the alternatives would result in an increase in the frequency that the maximum weekly average standard (MWAT) and daily maximum (DM) standard would be exceeded, relative to the number of exceedances for existing conditions. This applies to all of the alternatives in the 24-mile reach of the Colorado River below Windy Gap Reservoir to the confluence with the Williams Fork, and is based on the model results which applied the very warm 2007 meteorology data. See Section 3.8.2.4 for a complete discussion of temperature impacts.
127	(3) Despite the QUAL2K model conclusions that WGFP diversions will rarely be of a magnitude to result in exceedance of temperature standards (page 3-96), there are already instances where increased stream temperatures in the Colorado River below Windy Gap in summer exceed standards. Existing MWAT data for Colorado River near Windy Gap indicates water temperature is already at or exceeding the water quality	127. The FEIS acknowledges instances where the temperature standard has been exceeded in the Colorado River. Results of the dynamic temperature model allowed a direct comparison between temperature standards and predicted results over the course of a season as indicated in response to Comment No. 126.. As noted in response to Comment No. 125, the FWMP includes mitigation to address exceedance of the temperature standards. See response to Comment Nos. 2 through 5 for comment on flow reductions.

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 53	128. The majority of variables used in the Visual Basic for Applications Code of QUAL2K are double precision. Output of the QUAL2K model for water temperatures (in the DEIS) and concentrations are presented with a precision of six places to the right of the decimal. The results presented in the DEIS are often shown rounded to only two decimal places to correspond with the precision of the model input data.
127	standard (MWAT standard = 18.2 degrees) in July and August (p3-67 and 68, Figure 3-29). Moreover, all of the conclusions assume less reductions in flows from current conditions than actually will occur. *See* General Comments Section, above.	The model output shown in Figure 14 on page 21 of the WGFP Stream Water Quality Modeling and Methods Report graphically describes numeric data at the precision of the QUAL2K model (i.e., six decimal places). The y-axis numeric description is formatted as integers for clarity of the figure. The sharp steps in water temperature shown in the figure in the DEIS are primarily a result of tributary inputs modeled as point sources. Water temperature in the mainstem is predicted to change just downstream of a tributary source of a different temperature. Smaller step changes in water temperature are a result of model output from the discrete set of 78 computational elements in the modeled reach. Neither of these step changes shown in the model are a result of the precision (resolution) of the model output. See response to Comment No. 126 on the use of a dynamic temperature model in the FEIS.
128	(4) Conclusions about changes in temperature based on QUAL2K are shown in tenths of a degree Celsius (and concentrations of other water quality constituents are shown in tenths of a microgram per liter). This level of resolution is beyond the capabilities of QUAL2K Model. This shortcoming is demonstrated in the sensitivity analysis in the May 2008 Stream Water Quality Modeling and Methods Report (see for example Figure 14, p 21 MM Report).	
129	**Comment.** QUAL2K is a steady-state model, meaning it simulates water quality based on a multitude of inputs and assumptions for a single instant in time and thus is not dynamic over time. The condition of a steady-state instant (day) that the DEIS assessment considers is July 25 for "average" streamflow years. The concept was that this date is when the Colorado River experiences low-flows and hot and sunny summertime conditions, and it is also when Windy Gap could be diverting. (Note that although the DEIS chose July 25 of an average year to represent a worst case for temperature exceedances and impacts on aquatic life, there is no history of the temperature influence of Windy Gap pumping on aquatic life in July, because between 1984 and 2006 Windy Gap has only diverted one time (in 1985) in the month of July).	129. Yes, QUAL2K is a steady-state model and uses a multitude of inputs and assumptions under steady-state conditions. This model is actively being supported by the EPA. Steady-state water quality models have been used for decades by regulatory agencies and consultants (Birgand 2004). QUAL2E, the model which QUAL2K is based on, is considered a standard for water quality models (Chapra 1997; Shanahan et al. 1998). A dynamic water quality model relies on a much greater number of inputs and assumptions, many of which vary over time. Time series of inflowing water quality from tributaries, point, and nonpoint sources (at a fine time step) are required. These data were not available for the Colorado River when the DEIS was developed. QUAL2K was utilized on July 25, a date determined to be representative of flow conditions when Windy Gap diversions could occur and air temperatures would be high. Since completion of the DEIS, numerous additional temperature sensors were placed in the Colorado River during the summer months, allowing the development of a dynamic temperature model to simulate potential effects on the alternatives on river temperature. See response to Comment No. 126. Results of this analysis were provided to the CDPW, who worked with the Subdistrict develop a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2. A discussion of temperature mitigation is found in Section 3.8.4 of the FEIS.
130	**Comment.** The approach to evaluating Willow Creek water quality is different and found at page 3-92. SSTEMP was chosen to evaluate stream temperature changes in Willow Creek and a mass balance approach was used to evaluate changes in concentrations of ammonia, copper and iron on a single day, July 15. First of all, ammonia is not a conservative parameter and disassociates based on temperature and pH, so mass balance analysis is inappropriate. Further it was assumed that the WWTP plant discharge would not change pH or temperature as effluent becomes a greater percentage of the streamflow because Willow Creek Reservoir releases are reduced under WGFP alternatives (Stream Water Quality Technical Report, page 54). These assumptions are completely unjustified for the following reasons:	
131	(1) The Preferred Alternative would reduce Willow Creek streamflow by 36% in July of average years (see Table D-15, Water Resources Technical Report Appendices).	
132	(2) The DEIS assumes average Three Lakes WWTP flows (0.53 cfs) for Three Lakes WWTP (see page 36, Water Quality Monitoring and Methods	

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132	Technical Report) is continuous steady discharge when evaluating both alternatives and cumulative impacts (Stream Water Quality Technical Report, page 116). However, the Three Lakes Service Area population is projected to increase from 8,230 in 2005 to 12,821 by 2020. In addition, peak flows for Three Lakes Sanitation District occur typically in July, so average WWTP discharge flows are not appropriate. For example, the Stream Water Quality Technical Report (page 25) states the monthly average discharge from Three Lakes WWTP between 2003 and 2006 ranged from 0.46 cfs to 1.34 cfs.	132. As stated in the FEIS, the Three Lakes WWTP was recently expanded. It is assumed that the expansion was designed with future foreseeable population growth (12,821 by 2020) in the service area considered. For the FEIS, a review was conducted of additional discharge and water quality data from the Three Lakes WWTP. The maximum WWTP discharge that occurred from 2001 to mid-2009 (1.34 cfs) was used for the revised analysis. For cumulative effects, the maximum allowable discharge of 3.1 cfs was used for the analysis.
133	(3) Existing noncompliance with current water-quality standards in Willow Creek (Stream Water Quality Technical Report, p. 26) are noteworthy and must be considered in the assessment of impacts.	133. The FEIS states that "potential changes to ammonia, iron, and copper concentrations in Willow Creek were evaluated because these constituents sometimes have elevated concentrations in Willow Creek and could exceed standards more frequently at lower streamflows."
134	**Section 3.8 Surface Water Quality: General comments regarding issues with the DEIS modeling approach for Lakes and Reservoirs.** **Comment.** The DEIS (p 3-129) describes only minor adverse impacts to lakes and reservoirs in Grand County from WGFP. The identified impacts are lower dissolved oxygen resulting in manganese concentrations that would continue to exceed water quality standards, nutrient concentrations would increase in the Three Lakes system, and clarity in Grand Lake would decrease (0.1 meters). As with the DEIS stream impact analysis, this conclusion is a result of a flawed approach to evaluating impacts. The minor impacts to the Three Lakes system summarized by the DEIS in Tables 3-48 to 3-55 are based on modeling by the Three Lakes Water Quality Model and are problematic for many reasons, including:	134. See response to Comment Nos. 135–137.
135	(1) The DEIS describes increases in annual average nutrient concentrations (Table 3-47, p 3-103). However, impacts from nutrients are primarily related to algae growth and eutrophication in these waterbodies (page 3-93) which is a seasonal problem. Nutrient concentrations during the algae growing season are more relevant than annual averages. The growing season primarily coincides with the pumping of Colorado River water into Three Lakes which will increase with the WGFP, so actual impacts will be greater than depicted by annual averages.	135. The increases in annual average nutrient concentrations for each of the Three Lakes is described in the DEIS in Tables 3-50, 3-52, and 3-54. Table 3-47 shows the average annual nutrient load into the Three Lakes for existing conditions. Chlorophyll *a* concentrations measured from 2005 to 2009 indicate that the growing season is July to September for Grand Lake and Shadow Mountain Reservoir and May to July for Granby Reservoir. Growing season epilimnetic nutrient concentrations for existing conditions and the Preferred Alternative (Alternative 2) are shown in the table below:
136	(2) Future nutrient concentrations used as input to the Three Lakes Water Quality Model for waters pumped by Windy Gap are based on completely unrealistic projections of nutrient concentration, particularly phosphorus, discharged from WWTPs in the Fraser River watershed. Fraser River water is then pumped by Windy Gap into the Three Lakes system (page 30	

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136	Stream Water Quality Modeling and Methods Report). Therefore, both the in-lake concentrations and the algal response are underestimated. Since the conclusion that WGFP alternatives create no nutrient related impacts to streams or the Three Lakes System is based on the assumption of advanced treatment, then the WGFP project beneficiaries should be responsible for building the WWTP improvements necessary to make this assumption real.	
137	(3) Conclusions regarding changes in trophic Status Index are based on average chlorophyll *a* concentrations (p 3-93). Evaluating impacts of WGFP on Three Lakes should be weighted by pumping schedules instead of averaging.	
138	**Comment.** The overall approach to evaluating impacts to the Three Lakes system is flawed. The assessment of impacts from WGFP is focused on eutrophication and does not consider the exacerbation of the existing problems associated with the discharge of pollutants into the 3-Lakes from C-BT pumping. Eutrophication is the increase in productivity of a waterbody, meaning the acceleration of algae and aquatic weed growth as a result of the addition of nutrients or other elements otherwise limiting this growth. Eutrophication is associated with decreased clarity and dissolved oxygen and potential increased concentrations of certain metals. It is usually associated with the gradual worsening of water quality. The pumping of pollutants problem manifests itself in Grand Lake. It is seasonal in nature and can be best demonstrated by the following example from 2007.	

		TP (ug/l)		TN (ug/l)	
Water Body	**Growing Season**	**EC**	**A2**	**EC**	**A2**
Grand Lake	July-Sept	7.7	9.2	239	248
Shadow Mtn. Reservoir	July-Sept	11.5	13.1	256	264
Granby Reservoir	May-July	14.5	16.3	303	305

This information was added to the FEIS.

136. During the development of the DEIS, a certain level of treatment was assumed for future conditions for WWTPs in the Fraser River basin. We assumed a level currently being successfully achieved elsewhere in Colorado at WWTPs that impact another critical water body (Dillon Reservoir). Proposed nutrient mitigation described in Section 3.8.4 of the DEIS includes upgrades to the Fraser River WWTP and measures to reduce nonpoint source nutrient discharges. These measures would largely offset nutrient loading to the Three Lakes from Windy Gap pumping.

137. Changes in trophic status are computed using the methodology set forth by Carlson (1977). This method uses average chlorophyll *a* concentrations. In addition to reporting the trophic status, we report average chlorophyll *a* concentrations by year and peak chlorophyll *a* concentrations by year. A daily graph is included in the Lake and Reservoir Water Quality Technical Report and has been added to the FEIS.

The pumping schedule is accounted for in the model. See response to Comment No. 138.

138. The EIS evaluates and discloses the anticipated effects of the WGFP, it is not an evaluation of the C-BT Project and the effects of the C-BT Project on Grand Lake. The comment is made that the assessment is "focused on eutrophication and does not consider the exacerbation of the existing problems." The current problems, including those that the commenter describes (e.g., low clarity) are related to eutrophication and is the reason that a eutrophication (or nutrient food-chain) model is being used for the analysis. These types of models are not used to only look at long-term trends over a series of years or decades, but are also used to better understand dynamics on a shorter time scale.

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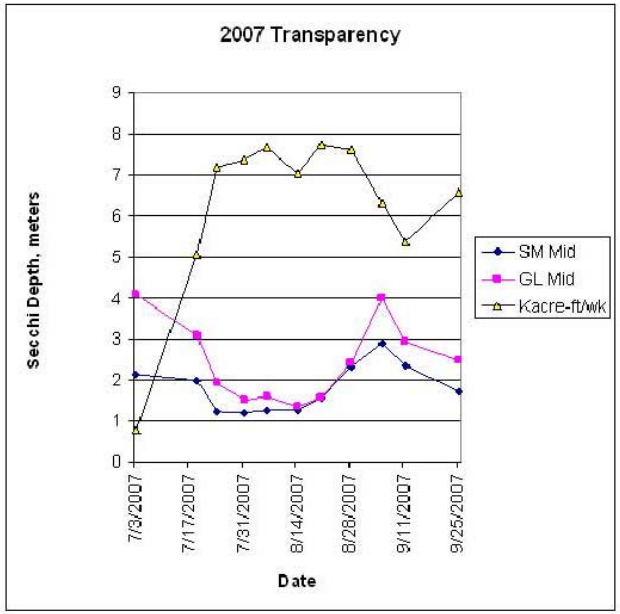
138	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 56  The graph shows a period of about three months in late summer of 2007. Transparency in Shadow Mountain Reservoir ("SMR"), as measured by Secchi Disk depth, begins to decline in July. This is probably because of eutrophication of the SMR, the well documented seasonal blooms of algae and rooted aquatic vegetation in SMR. It is also documented that pollution levels in Grand Lake are a affected by water quality in SMR (see Page 37, US Bureau of Reclamation Report *Nutrients, Chlorophyll a and Secchi Disk Transparency of Five Reservoirs on the Colorado Big Thompson Project, 2005 to 2006*, Davine Lieberman, April 2007; "This late season peak [of total phosphorus] does not occur in Lake Granby, indicating that SMR and Grand Lake are linked by the overflow of SMR water flowing into the epilimnion of Grand Lake during pumping operations.").	

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138	From the graph it is obvious that as C-BT pumping begins in earnest in late July, Grand Lake clarity is diminished and essentially matches that of SMR. In early September the SMR bloom begins to die off, pumping is reduced and Grand Lake regains its 4 meter clarity briefly. Transparency of SMR again is diminished and the pumping increases toward the end of September and the transparency of Grand Lake responds accordingly. The average of the Secchi disk depth in Grand Lake during this period is 2.45 meters. This is almost the same value as what is shown as the average annual value of the 15-Year modeling period for both existing conditions and projected alternatives in the WGFP water quality assessment (see Table 45, page 103 of the Lake and Reservoir Technical Report). Although there is a seasonal reduction in Grand Lake's 4 meter clarity by over 65% during this same period as a result of pumping, on *average* there is little change. The approach to analysis of projected impacts focuses on annual averages and fails to incorporate the real problem of seasonal impacts to the 3-Lakes from pumping, and so the DEIS fails to project how WGFP will really affect this existing water quality problem.	
139	**Comment.** Note that predicted changes for both SMR and Grand Lake for water quality parameters associated with algae growth and affecting clarity are slightly worsened for all WGFP alternatives *on average* (DEIS Table 43 page 91 and Table 46 page 103 of Lake and Reservoir Water Quality Report, July 2008). Given that slight worsening *on average*, it is reasonable to expect that this seasonal polluting of Grand Lake associated with pumping will get significantly worse. The Three-Lakes Water Quality Model does not account for this situation.	139. In addition to reporting the annual average concentrations, the range of concentrations are reported in the DEIS for total phosphorus, total nitrogen, chlorophyll *a*, and Secchi-disk depth (Tables 3-52 and 3-54 for Shadow Mountain Reservoir and Grand Lake). Thus, the reader can compare worst-case conditions. In addition, daily graphs for nutrients, chlorophyll a, dissolved oxygen, and Secchi-disk depth have been added to the FEIS.
140	**Comment.** The model assumes instantaneous dispersal of constituents introduced into 3-Lakes (page 65 of WGFP Lake and Reservoir Water Quality Report, July 2008). However, it has been shown that because of temperature differences SMR waters "tend to slide over the surface waters of Grand Lake when water is being pumped down the Adams Tunnel" (see page 8, US Bureau of Reclamation Report *Physical Attributes of Five Reservoirs on the Colorado Big Thompson Project, 2005 to 2006*, Davine Lieberman, undated). This confirms that physical circumstances related to pumping in Grand Lake, at least, partially limit the possibility of eutrophication because pollutants are stripped out of the Lake instead of mixing. It also confirms that the DEIS may be looking at the wrong problem, using incorrect assumptions about mixing, and drawing faulty or misleading conclusions about impacts. Given this, the proposed mitigation to continue participation in ongoing Nutrient Studies in the Three Lakes system is meaningless.	140. The Three Lakes Water Quality Model was modified after Reclamation's report was written to incorporate the phenomenon described by the commenter. The current version of the model routes the water flowing from Shadow Mountain Reservoir to the surface of Grand Lake. Proposed nutrient mitigation described in Section 3.8.4 of the FEIS would reduce nutrient concentrations in Willow Creek and the Colorado River upstream of Windy Gap Reservoir and subsequently, the amount of nutrients being pumped into the Three Lakes System as a result of the WGFP. These measures would offset nutrient loading to the Three Lakes as a result of increased pumping from the WGFP. These measures would also improve water quality in portions of the Fraser River, Willow Creek, and Colorado River year-round.
141	Page 3-65	

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141 **Comment.** In the surface water quality section, the statement "Windy Gap Reservoir is a small in channel reservoir and would have water quality similar to that of the Colorado River; therefore it was not evaluated separately" is unsupportable; monitoring on the reservoir was only begun in earnest in 2008. Windy Gap Reservoir slows and heats discharges from both the Fraser and Colorado Rivers, promoting the growth of algae and vast amounts of aquatic plants. In addition the contributions of migratory and summer populations of water fowl are at this time unknown. The effects to water quality from these influences can only be negative, and warrant further study and separate consideration. (An example of this is the low dissolved oxygen values mentioned below Windy Gap on p 3-66).

Section 3.8.1.3 West Slope Affected Environment

142 Page 3-66

Comment. The didymo (rock snot algae) also has effects on irrigators and water diverters because it plugs their pumps and intakes. The (Spaulding 2007) cite is not included in the references.

143 **Comment.** The statement "Colorado River water is generally of good quality throughout the study area" was grafted from p21 of the Stream Water Quality Technical Report and *refers to water quality data presented for the Colorado River below Baker Gulch, a site on the Colorado located in Rocky Mountain National Park that is of exceptional water quality and is not representative of conditions in the study area.* Data for the Baker Gulch site is presented on p16 of the Stream Water Quality Technical Report and in the cases of specific conductivity, dissolved oxygen, pH, ammonia, nitrate and nitrite, sodium, manganese, and selenium, nearly all of the upper range values are considerably lower than any reported in table 3-23 of the DEIS, and some of the ranges are entirely below those reported in 3-23.

This statement and presentation of the water quality data from that site as being representative of the whole region or even as being inside the study area is deliberately misleading. The statement should read that Colorado River water quality is quite variable throughout the study area.

144 **Comment.** While it is the convention of sanitation plants and associated permits to use the units of gallons per day or per minute, these units are inconsistent with the cubic feet per second and acre feet per year units used elsewhere in this document, making this section unintelligible.

141. The water quality in Windy Gap Reservoir is now included in the monitoring program. A comparison of some water quality variables at nearby sites, taken on or near the same day, is shown below. The sites are above the reservoir (CR-WGU), in the reservoir (WG-DAM), and below the reservoir (CR-WGC). In general, there is not much variation.

	TP (ug/l)			TN (ug/l)		
Date	**CR-WGU**	**WG-DAM**	**CR-WGC**	**CR-WGU**	**WG-DAM**	**CR-WGC**
6/16-17/09	53	37	34	247	250	220
7/15/09	43	48	44	313	290	468

	Chla (ug/l)			TOC (mg/l)		
Date	**CR-WGU**	**WG-DAM**	**CR-WGC**	**CR-WGU**	**WG-DAM**	**CR-WGC**
6/16-17/09	3	1	2.7	5.4	4.7	4.6
7/15/09	1.4	-	2.2	4.6	4.2	4.6

Dissolved oxygen concentrations have been taken above and below the reservoir. Data for summer 2008 above and below the reservoir are shown below. There is little change between the two sites. Note that since 1995, all dissolved oxygen measurements at the USGS gage downstream of Windy Gap Reservoir have been above the standard.

Dissolved Oxygen Concentrations (mg/l)

Date	CR-WGU	CR-WGC
5/20/08	8.5	8.9
5/29/08	8.8	9.1
6/3/08	8.7	8.7
6/12/08	9.2	8.7
6/16/08	8.7	8.2
7/1/08	7.9	8.6
8/27/08	9.4	9.3

142. The Spaulding reference was added to the FEIS references in Chapter 5.

143. There was an error in the Water Quality Technical Report on page 26. The sentence should read "Tables 5 through 10 show that the Colorado River is generally of good quality throughout the study area." The rest of the paragraph describes Colorado River water quality conditions from below Baker Gulch to near Kremmling. This error was not in the EIS; therefore, no changes were made to the FEIS.

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	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 59	144. Flows in terms of cfs have been added to the discussion in the FEIS.
145	**Comment.** The Three Lakes Water and Sanitation District should be included in the listing of dischargers to the Colorado River here, and their effluent should be considered a part of the water quality modeling if it was not, as it will be included in the total Windy Gap nutrient load that is returned to the Three Lakes.	145. The Three Lakes Water and Sanitation District has been added to the discussion of dischargers. The impact of this plant has been considered in the analysis.
146	Page 3-67 **Comment.** Figure 3-29. As discussed above, water temperature standards are currently being exceeded. The Proposed Action will make things worse.	146. Mitigation for impacts to temperature are discussed in Section 3.8.4 of the FEIS.
147	**Comment.** Table 3-26. Water Quality standards are not being met for Granby Reservoir for: dissolved oxygen; chronic summer temperature; and manganese.	147. According to Table 3-26 of the DEIS, this statement is true.
148	Page 3-68 **Comment.** Table 3-24 for Willow Creek water quality demonstrates that water quality in the study area is variable and quite different from that of Baker Gulch, which has better water quality in nearly all parameters than that of Willow Creek.	148. Willow Creek water quality was treated separately from the Colorado River in both the Water Quality Technical Report and the EIS. The discussion of the Colorado River was of the mainstem, not its tributaries.
149	**Comment.** A hard look requires an analysis of the impacts of pumping on the Three Lakes paying particular attention 1) to how the WGFP will reduce flexibility in the system to turn off pumping to stop the export and feeding of algae blooms in Shadow Mountain Reservoir to Grand Lake, 2) to how pumping to optimize nighttime energy consumption when power costs are low and daytime releases through the Adams Tunnel to maximize revenues from energy generation influences water quality.	149. Reclamation and the NCWCD are currently evaluating how modification to pumping operations on the Three Lakes affects water quality. This is an ongoing effort that will continue irrespective of the WGFP, with the goal of improving lake water quality while maintaining water deliveries.
150	**Comment.** For the section including surface water quality and the Three Lakes region, please discuss the fact that 1) the west slope water bodies are more productive than the east slope water bodies (higher chlorophyll α), and 2) the west slope water bodies produce bluegreen algae where the east slope do not. Please include in this discussion 1) why this might be, 2) and what these circumstances mean operationally for the system, and 3) what special challenges they pose to operating in a fair and equitable manner on both sides of the Continental Divide.	150. According to Liebermann (2008), "at this time, greater productivity on the western slope most likely is from a combination of factors including the exchange of water between the three bodies of water during pumping operations." It appears that specific reasons for the differences between water bodies and on the East Slope and West Slope were not determined in the three-year study. In addition, no reasons were cited for the cause of the growth of blue-green algae on the West Slope. A discussion of special challenges for operating the system in a fair and equitable manner is beyond the scope of the EIS.
151	Page 3-74 **Comment.** Grand Lake is not only the largest natural lake in Colorado, it was specifically protected by Senate Document 80 as a primary purpose of the CB-T project: 2. To preserve the fishing and recreational facilities and the scenic attractions of Grand Lake . . ." (emphasis added). "Preserve" is defined as	

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151	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 60 1. To keep safe, as from injury or peril: PROTECT. 2. To maintain unchanged. 3. To keep or maintain intact. Webster's II New College Dictionary (1999). The DEIS demonstrates that water quality has not been preserved in Grand Lake. Instead it has been degraded. The DEIS needs to analyze the alternatives beginning with this key existing problem. The DEIS should explain whether and to what extent the WGFP will "preserve" the water quality in Grand Lake, or whether pumping more polluted water from the Colorado River into Lake Granby, through Shadow Mountain, and into Grand Lake will exacerbate the existing water quality concerns.	151. The predicted impacts on Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake from the WGFP are described in the DEIS. These impacts are compared to existing conditions and the No Action Alternative. The predictions show some degradation of water quality. Proposed nutrient mitigation described in Section 3.8.4 of the FEIS includes measures that will minimize nutrient loading from additional WGFP pumping. These measures would offset nutrient loading to the Three Lakes from Windy Gap pumping.
152	**Comment.** Please update the discussion of dissolved oxygen in Shadow Mountain Reservoir to include what we know to be true, that dissolved oxygen standards are regularly exceeded in the southern end of the reservoir, also updating your table, and especially including a thorough discussion and consideration of the impacts to water quality beyond the mere statement that "Low DO concentrations can be a concern because of the potential release of orthophosphate, ammonia, iron, and manganese from the sediments under anoxic conditions."	152. The FEIS has been revised to include additional discussion of dissolved oxygen in Shadow Mountain Reservoir.
153	**Comment. Algae and Trophic State.** The statement "All microcystin results received through July 24, 2007 for Shadow Mountain Reservoir have been below the detection limit" tells a partial truth because it stops short of the date for which we do have a value above the detection limit. Results for 8/6/2007 indicate a microcystin toxin value of 1.15 micrograms per liter by ELISA in Shadow. While HPLC results do not corroborate this value, it is not certain that they would, and in any case would likely have required sample concentration techniques, the need for which were unknown at the time. As such, the ELISA value, while acknowledged to be subject to false positives, is the best value we have from the time and should be mentioned with explanation of its limitations.	153. The DEIS states that "all microcystin results received through 2007 for Grand Lake have been below the detection limit except for two August 2007 samples with concentrations of 0.85 ug/l and 0.87 ug/l" (Clements 2007). In addition, all samples taken in 2008 were below the detection limit of 0.06 ug/l, with the exception of one at GL-PIC on September 8, 2008. This measurement was 0.139 ug/l. Microcystin toxin levels of more than 1 ug/l are a concern for drinking water purposes (WHO 1998).
154	**Comment. Algae and Trophic State.** If Ms. Leiberman's data is used, 7.3 micrograms per liter of chlorophyll is an inaccurate average, and peak concentrations have risen to 28 micrograms per liter, or nearly double the value cited here. Nonetheless, a value of 7.3 micrograms per liter does not define the lake as mesotrophic, but rather places it on the meso/eutrophic boundary. Using Ms. Leiberman's averages instead for 1, 5, or 1-5 meter sample collections puts the lake squarely in the eutrophic category, which is unacceptably degraded over pre-Windy Gap and especially pre-C-BT values. Please see comment regarding Jahnke, 1981 document in Lake and Reservoir Water Quality Technical Report section.	154. The statistics reported were for the period from 2000 to 2005. It is noted that a value of 7.3 ug/l would place the lake at the boundary of a meso-eutrophic trophic status. The FEIS has been revised to reflect this.
155	**Comment. Nutrients.** "No recent bioassays have been conducted to determine if this situation has changed." is untrue. Davine Leiberman has completed her three year study	155. Ms. Leiberman did not conduct bioassays as part of her study. The results of her study (2005 and 2006) were used in the development of the Three Lakes Model.

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155	on the Three Lakes and from my understanding the final report has been submitted to Northern. Data from this report is new, more thorough than what was provided previously to the EIS process, and should be brought to bear on the document.	
156	**Comment. Grand Lake.** "The residence time…is short due to the operation of the C-BT Project and varies according to operations." This cannot be true for the entire volume of the lake, particularly with the strong stratification that is acknowledged to occur during the summer. Please see comments on p3-93. Again we have a case where it is very inappropriate to use an averaged value, in this case residence time, to represent such a complex system with any degree of accuracy. Discussion of microcystin toxin in Grand Lake is improved over the PDEIS but still leaves out ELISA value of 1.48 ug/L for 8/6/2008. This value is potentially more reliable than the HPLC values which most likely require concentration of the sample, concentration that did not occur, before they can accurately be relied upon for quantitative values, if at all. Though the ELISA is susceptible to false positives, far better to state this than to omit a potentially significant value. In addition a concentration of 0.19 ug/L was detected in the lake on 8/20/08, and a Grand Lake homeowner's tap checked in at 0.19 ug/L on 8/14/07.	156. Our request to GCWIN for 2008 microcystin data did not include the observations reported in this comment. All samples we received for 2008 were below the detection limit with the exception of one sample at GL-PIC on September 8, 2008. This measurement was 0.139 ug/l. Measurements for Grand Lake on August 5, 2008 (one day before the date in question) were below the detection limit.
157	**Comment.** The section on clarity notes that Grand Lake clarity has varied between 1.8 meters and 5.6 meters. The 5.6 meter Secchi depth measurement is the second best measurement ever documented on Grand Lake (second only to Pennak's 9.2 meter measurement in 1941). That data was taken in November of 2006, at a time when water temperatures had cooled, summer algal blooms had died off, and C-BT pumping had ceased three weeks earlier to facilitate the draw-down of Shadow Mountain reservoir for weed mitigation. Only East and North Inlet stream flows were providing water to Grand Lake during that time period. These circumstances serve to highlight the fact that pumping schedules and seasonal algae blooms have a very substantial effect on water quality especially in terms of clarity.	157. The 5.6-meter Secchi-disk depth measurement is not the second best measurement ever documented for Grand Lake. On November 21, 2000, the Secchi-disk depth was reported as 5.7 meters by the USGS. It is not unusual for the transparency of a lake to improve in the fall. Note that in 1953, the range of Secchi-disk depth readings in Grand Lake was found to be 1.2 to 4.6 meters. The 1953 readings were taken between May and October.
158	**Section 3.8.2.2 Regulatory Requirements** Page 3-86 **Comment.** The need for a 401 Certification from the State of Colorado as part of the 404 permit and an anti-degradation review by CDPHE are noted. However, in spite of conclusions throughout the DEIS regarding exceedances of water quality standards, the DEIS analysis is not consistent with the approach used by CDPHE for evaluating compliance with standards or the anti-degradation review. The DEIS typically considers median water quality values and average flow conditions, which is not the approach	158. Every attempt was made to assess water quality standards using the same methodology used by CDPHE at the time. Median water quality values and average flow conditions were not used for evaluating compliance with standards.

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158	CDPHE uses for determining compliance with standards (5 CCR 1002-82) or in an anti-degradation review (5 CCR 1002-31.8(3)). The DEIS is inadequate to form the basis of the 404 permit.	
159	Pages 3-87 and 3-88 **Comment.** The requirement to obtain a 404 permit applies to alternatives that construct reservoirs in waters subject to the jurisdiction of COE.	159. True. A 404 Permit would be needed for all of the alternatives.
160	**Section 3.8.2.3 Method for Effects Analysis** Page 3-93 **Comment.** The representation of flow down the Adams Tunnel as coming entirely from the epilimnion is incorrect. For this concept we are working from a diagram found in a Reclamation document entitled "Hydraulic Lab Report Number 151: Model Studies of the Alva B. Adams Tunnel Inlet Control Structure…" dated September 21, 1944. Some of what follows is contingent on this diagram accurately representing or at least approximating the actual structure of the current Adams Tunnel Inlet. According to this diagram, the inlet mouth is about four feet high, spanning a distance from roughly 7.4 feet to 12 feet below water surface, calculated from the top possible elevation of the water surface. The location of the Adams Tunnel inlet between the North Inlet and the East Inlet is ideal for maximizing capture of the clean water that flows into Grand Lake from these two very pure rivers. In addition, we believe that the elevation of the Adams Tunnel inlet structure is well placed to "high grade" (to borrow a term from mining) the good quality water that flows into Grand Lake for much of the summer. In the spring after ice-off the lake turns over and is well mixed. Stratification begins immediately, and an epilimnion, metalimnion and hypolimnion begin to develop. During May, June and possibly all of July (depending on the time of ice off), these layers are thin enough that the water flowing into the inlet is either derived entirely from the mixed waters, the diluted hypolimnion which at this time of year has desirable water quality roughly the same as the mixed waters, or from the very high quality metalimnion, into which we believe the rivers flow once stratification has become established. It is not until roughly late July or early August that the epilimnion has become wide enough (about 4 meters or 16 feet at that time of year) that it is finally able to span the entirety of the Adams Tunnel mouth. At this time all of the water flowing down the Adams Tunnel does appear to be coming from the epilimnion, which is believed to be composed almost entirely of the poorer quality water pumped in from Shadow Mountain Reservoir. From late July or early August, until fall turnover in either October or November, sediment and	160. The commenter takes issue with the assumption that the flow from Grand Lake to the Adams Tunnel inlet comes from the epilimnion of Grand Lake. For the months when the lake is well mixed (~November – April), and concentrations are similar for each layer. For the months of August through October, the commenter agrees that the epilimnion is thick enough to cover the Adams Tunnel inlet and that the epilimnion at this time consists of poor quality water. The apparent discrepancy occurs for the months of May through July. The commenter notes that during this period, the flow could be coming from the mixed layer, the metalimnion, or the "diluted hypolimnion" – all of which, it is noted, are of high quality. We understand that the size of the layers changes over time and that although the layer-outflow relationship can be changed in the model on a monthly basis, we assigned the epilimnion to the Adams Tunnel throughout the year. Since the flow to the Adams Tunnel during May through July (as the commenter notes) could come from different layers, the concentrations are similar during that period. Thus, the load of nutrients being exported from Grand Lake to the Adams Tunnel should be similar whether or not the flow is from the epilimnion, the metalimnion, or the "diluted hypolimnion."

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160	algae laden water from Shadow Mountain Reservoir is thought to spread out over the entire epilimnion, some of which is siphoned off by the Adams Tunnel. At the time of fall turnover, Grand Lake is capped with a layer of low transparency, high algae and sediment content water. When turnover occurs, this load is incorporated into the whole of Grand Lake, and again the diluted mixed waters are made available to the Adams Tunnel. The flow down the Adams Tunnel is composed of water from Shadow Mountain Reservoir only about three months out of the year, rather than six. The continual loading of the epilimnion in summer, as well as of the entire mixed water body in winter, year after year, can only mean that Grand Lake has had to arrive at, or continues to approach, a new equilibrium which reflects those undesirable contributions from Shadow Mountain Reservoir. This is evident, among other indicators, in reduced clarity, increased algae growth, and the formation of a significant delta at the channel entrance.	
161	Pages 3-104 and 3-107 **Comment.** The argument is made that increased pumping will decrease residence times in the three lakes, thereby reducing impacts from increased nitrogen concentrations. This argument appears to be erroneous at least for Grand Lake, but probably also for Granby Reservoir, when according to Davine Leiberman's 2008 study, algae blooms persist in Grand Lake even when pumping is high and flushing rates increase to within the range of days.	161. The discussion on pages 3-104 and 3-107 of the DEIS are focused on nitrogen concentrations, not chlorophyll *a* concentrations, nor the impacts of nitrogen concentrations.
162	**Section 3.8.3 Cumulative Effects** Page 3-115 **Comment.** Pine-bark beetle infestation and climate change must be considered as part of the cumulative impacts for lake and reservoir water quality report and for stream water quality.	162. Quantitative effects of pine bark beetle infestation and climate change on water quality are difficult to accurately predict because of the numerous assumptions that would be necessary. Additional discussion was added in Section 3.8.3—Cumulative Effects of the FEIS on potential qualitative effects to water quality from climate change and bark beetles. See also response to Comment No. 67.
163	**Comment.** The use of one day of July 25th as a worst case scenario makes no sense.	163. See response to Comment No. 129.
164	**Section 3-8.3.1 West Slope Cumulative Effects** Page 3-121 **Comment.** Granby Reservoir. "Phosphorus concentrations would be lower than in the direct effects analysis due to anticipated advanced wastewater treatment in the Fraser	164. Proposed nutrient mitigation described in Section 3.8.4 of the FEIS includes measures to reduce nonpoint source nutrient discharges. These measures would offset nutrient loading to the Three Lakes from additional pumping that results from the WGFP. See also response to Comment No. 136.

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164	River basin in the future." If the analysis of phosphorous concentrations in the DEIS is based on the assumption that treatment plants will be upgraded, then the Carriage Contract must be conditioned on such upgrades being constructed by the applicant for the predictions about phosphorous to be accurate.	
165	**Comment.** There is no discussion of how the possible consecutive dry year reduction in water levels of up to 44% from the mean depth of 74 meters, 15% difference from the maximum depth (p3-53 WGFP DEIS), will influence water quality. Repeated freezing and thawing of exposed sediments is likely to increase nutrient and potentially metals loading in the reservoir which is not accounted for in any way.	165. As described in Section 3.5.4 of the FEIS, proposed mitigation includes a modification in prepositioning to reduce drawdowns in Granby Reservoir. However, there would still be some difference in the swings in surface water elevations in Granby Reservoir between existing conditions and the modified Preferred Alternative. The table below shows the changes in surface water elevation (SWE) for the dry years of 1954 to 1957: Although the reservoir currently experiences large swings in contents, the modified Preferred Alternative could lead to a slight increase in shoreline erosion, turbidity, suspended sediment, and phosphorus to Granby Reservoir, although given the current operations, it would probably not be measurable. This is not accounted for in the Three Lakes Model. Section 3.5.4 in the FEIS was modified.
166	**Section 3.9 Aquatic Resources** **Comment.** The conclusions in the Aquatic Resources section are based on the information contained in the Aquatic Resources Technical Report dated July, 2008. The conclusions brought forward into the DEIS are inaccurate because of the many problems with that technical report. Please refer to the *Wyatt Memorandum*, Exhibit C for a detailed discussion of the inadequacies of the aquatic resources impact assessment. In addition, all of the conclusions about impacts to aquatic resources are called into question by the failure to use existing conditions to measure the significance of stream depletions. See General Comments Section, above.	166. The Aquatic Resource Technical Report used existing daily flows and existing conditions for fish and macroinvertebrates. Habitat analysis was based on the current state-of-the-art two-dimensional hydrodynamic model as recommended by USGS. See also response to Comment Nos. 2 to 5.
167	**Comment.** This section should refer to Grand County's Stream Management Plan. See comment under Chapter 5, below.	167. A discussion of Grand County's SMP was added to Section 3.9.1.4 of the FEIS. The existing streamflow conditions were used for the analysis. The impact of the habitat reduction is stated in the FEIS. Additional analysis and tables are included in the FEIS for clarification (Section 3.9.2).
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168	**Comment.** The reduction of 24% habitat for fishery is significant and is likely to be far more significant if the impacts were measured against actual *existing* stream flow conditions. *See* General Comments Section above.	
	Section 3.9.3 Cumulative Effects	
169	**Comment.** Senate Document 80, the document that controls operation of the C-BT, states that one of the primary purposes of C-BT is "[T]o preserve the fishing and recreational facilities and the scenic attraction of Grand Lake, the Colorado River…" As part of discussion of the cumulative effects, there should be a discussion of whether fishing and recreation actually have been preserved under current conditions. The DEIS also should make reference to the 1951 report prepared by the US Fish and Wildlife for Reclamation which detailed the devastating effects of Granby Dam on the Colorado River. We are aware of two scientific assessments of the stream reach below Granby	

	Change in SWE (ft) for EC	Change in SWE (ft) for Modified Alt 2
June 1954 – April 1955	-37	-39
April 1955 – June 1955	+13	+14
June 1955 – March 1956	-46	-43
March 1956 – June 1956	+49	+50
June 1956 – April 1957	-37	-46
April 1957 – July 1957	+79	+86

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169	Reservoir the 1951 United States FWS report and the Grand County Stream Management Plan. Exhibit G attached shows comparisons of the flows below Granby Reservoir. There is no assessment whether existing bypass flow requirements below Lake Granby and Windy Gap are appropriate for protection of the environment or whether prolonged durations at those flow levels as a result of WGFP alternatives will have an adverse impact.	169. Both of these reaches of river have minimum instream flow decrees that protect the resource to a reasonable degree. These flows are based on the technique specified by the State of Colorado to determine minimum flows for protection of the aquatic environment. The WGFP has no impact on the established instream flows below Granby Reservoir. The adequacy of these bypass flows are outside the scope of this EIS.
170	**Section 3.9.4 Proposed Mitigation** Page 3-145 **Comment.** The discussion of mitigation of impacts to aquatic resources is inadequate.	170. The FEIS includes additional mitigation measures for aquatic resources as included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict (FIES Appendix E). These measures include curtailment of WGFP diversions under certain conditions when Colorado River temperatures exceed water quality standards; use of the Windy Gap Reservoir bypass valve and auxiliary outlet to release cooler water; increased flushing flows below Wind Gap Reservoir; and nutrient reduction measures to improve water quality in the Fraser River, Willow Creek, and Colorado River. These measures are described in Sections 3.8.4 and 3.9.4 and summarized in Section 3.25 of the FEIS.
171	**Section 3.13.2.2 Methods for Effects Analysis** Page 3-195 **Comment.** If the original Windy Gap was purported to divert an average of 56,000 af why is only 18,779 af of average depletions being paid for under the Fish and Wildlife Service Programmatic Biological Opinion for recovery of endangered fish?	171. The Programmatic Biological Opinion (PBO) provides for the continued "existing depletions" as of September 30, 1995, which includes 18,779 AF for the Windy Gap Project (see "Final Programmatic Biological Opinion for Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River," December 1999, including Appendix B and Appendix F). Additional depletions for the Windy Gap Project (above 18,779 AF) would be treated as "new depletions" and are subject to PBO requirements, including a depletion charge.
172	**Section 3.18 Land Use** Page 3-216 Please see attached *Coley/Forrest Memorandum*, Exhibit F pg 7 section 1.6, and page specific comments at pg 28 section 2.1 for a complete discussion of the problems with the land use impact assessment.	172. See responses to Grand County Comment Nos. 355 to 364 and 402 to 406.
173	**Section 3.19 Recreation** Page 3-230 The discussion of impacts to recreation is inadequate to satisfy the "hard look" test. Please see attached *Coley/Forrest Memorandum*, Exhibit F pg 9 section 1.7, and page specific comments at pg 29 section 2.2 for a complete discussion of the problems with the recreation impact assessment.	173. See responses to Grand County Comment Nos. 365 to 388 and 407 to 431.
174	**Section 3.21 Visual Quality** Page 3-265	174. See responses to Grand County Comment Nos. 394 and 432 to 438.

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174	The discussion of impacts to visual quality is inadequate to satisfy the "hard look" test. Please see attached *Coley/Forrest Memorandum*, Exhibit F pg 24 section 1.8, and page specific comments at pg 33 section 2.3 for a complete discussion of the problems with the visual quality impact assessment.	
175	**Section 3.22 Socioeconomics.** Page 3-272 The discussion of socioeconomic impacts is inadequate to satisfy the "hard look" test. Please see attached *Coley/Forrest Memorandum*, Exhibit F pg 25 section 1.9, and page specific comments at pg 35 section 2.4 for a complete discussion of the problems with the socioeconomics impact assessment.	175. The socioeconomic impact assessment appropriately evaluates the relevant resources that may be affected, specifies assumptions, discloses methods, and supports conclusions with the best data available. See responses to Comment Nos. 328 to 346, 397, and 439 to 454.
176	**Chapter 5 References** **Comment.** The DEIS fails to consider or discuss *Grand County's Stream Management Plan, Phase 2, Environmental and Water Users Flow Recommendations*, April 2008 and mitigation. Grand County has been involved in an ongoing effort to provide a scientific study for the analysis and recommendation for preferred flow regimen for streams and rivers in Grand County. Phase 2 of that study focused among other things on an environmental flow regimen "determined to best maintain the ecological needs of the stream in relation to fisheries." *Grand County's Stream Management Plan, Phase 2, Environmental and Water Users Flow Recommendations*, April 2008, ES-1. ("GCSMP"). The GCSMP has been and is still on the Grand County website. Although the DEIS was completed months after Phase 2 of the GCSMP, the DEIS does not cite this study as a reference or discuss the findings and recommendations for environmental flows. The DEIS needs to be supplemented to include the information from the GCSMP and to include a discussion of potential mitigation measures developed in the GCSMP. The stream reaches that are affected by the proposed alternatives included in the GCSMP are: • CR3, Colorado River – Granby Reservoir to Windy Gap. • CR4, Colorado River – Windy Gap to Williams Fork. • CR5, Colorado River - Williams Fork to KB Ditch.	176. The Grand County SMP was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. A discussion of Grand County's SMP was added to Section 3.1.9.4 of the FEIS.

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176	Mr. Will Tully Mr. Chandler Peter, P.E. *Re: Northern Colorado Water Conservancy District, Windy Gap Firming Project* *Grand County Cooperating Agency Comments:* *Windy Gap Firming Project Draft Environmental Impact Statement* December 29, 2008 Page 67 • CR6, Colorado River - KB Ditch to Blue River Confluence. • CR7, Colorado River - Gore Canyon to Grand-Eagle County Line. • WC, Willow Creek – Willow Creek Reservoir to Colorado River. • BR, Blue River - Green Mountain Reservoir to Colorado River. We would look forward to a meeting to discuss these concerns at any time. Sincerely, Barbara J.B. Green cc: Board of County Commissioners of Grand County Lurline Underbrink Curran J. Scott Franklin (via email: j.scott.franklin@usace.army.mil) Deborah Lebow-Aal, EPA	

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177	BBA water consultants BISHOP-BROGDEN ASSOCIATES, INC. Michael A. Sayler Christopher J. Sanc Jeffrey A. Clark Charles E. Stanzior Robert E. Brogden December 23, 2008 Barbara Green, Sullivan Green Seavy, 2969 Baseline Rd., Boulder, CO 80303 Dave Taussig, White & Jankowski, 511 16th St., #500, Denver, CO 80202 Peter Fleming, Colorado River Water Consv. Dist., P.O. Box 1120, Glenwood Springs, CO 81602 RE: Concerns and Comments on the Windy Gap Firming Project DEIS Dear Barb, Dave and Peter: This letter report provides a summary of our primary concerns and comments regarding the water resource aspects of the Draft Environmental Impact Statement (DEIS) for the Windy Gap Firming Project (WGFP), dated August 2008, and the potential impacts to the upper Colorado River basin. We have reviewed this report on behalf of our clients Grand County, Colorado and the Colorado River Water Conservation District. For purposes of this letter report, we have reviewed the DEIS in general (dated August 2008), but have focused our review on the Water Resources Technical Report (WRTR) and Technical Report Appendices, dated December 2007. We have also reviewed prior drafts reports, supporting engineering or technical reports, records of the Colorado State Engineers Office, published information, information in our files and information available on-line. This letter report presents an overall summary of our concerns with the information presented in the DEIS and its overall conclusions, followed by detailed comments regarding the Water Resources Technical Report. This letter report also presents a summary of recommended mitigation measures that should be included in any permit approval associated with an Action Alternative for the WGFP. **Overall Principal Concerns** We believe that both the analysis and the overall conclusions of the DEIS are flawed. The DEIS derives its conclusions based on inaccurate modeling and inappropriate methodology. This conclusion regarding the DEIS flaws is based on the following primary concerns: 1. The DEIS does not accurately portray the effects of prior water diversion projects in the Upper Colorado River basin. An EIS analysis is intended to compare the proposed actions to the past, current and future environmental conditions. The upper reaches of the Colorado River in Grand County have been heavily depleted by existing water development projects. The information contained in the DEIS is insufficient to present an accurate representation of the changes in hydrology that have occurred over time. www.bbawater.com 333 West Hampden Avenue, Suite 1050 Englewood, Colorado 80110 phone 303.806.8952 fax 303.806.895	177. Additional information similar to BBA's table was added to Section 3.5.1.4 of the FEIS to summarize the effects of historical upstream depletions at the Colorado River at Windy Gap gage (09034250) for the 20-year period from 1985 through 2004. This period was selected because the Windy Gap Project came online in 1985; therefore, it includes the effects of all major upstream transbasin diversions (Grand River Ditch, C-BT Project, Moffat Project, and Windy Gap Project). Table 3-1 better represents the impacts of upstream diversions than the table proposed by BBA in their comment because BBA did not consistently present data for the same time period. For example, BBA presents average annual native flow for the period from 1904 through 1936, yet includes average annual diversion data for periods from 1975 through 2007, 1975 through 2006, 1985 through 2005, and 1974 through 2004. There is no way to discern differences in flow caused by diversions vs. differences due to variations in hydrologic

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177	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 2 The table below presents a summary of the historic water development projects as they have affected the native and remaining streamflows. As the table shows, the current average annual streamflow volume at the Hot Sulphur Springs streamgage (USGS Gage No. 09034500) is approximately 26% of the historical native supplies. With the projected depletions from the WGFP, coupled with the foreseeable action of the Moffat Expansion Project, the remaining streamflow will be approximately 17% of the historical native supplies. Figure 1 below shows similar information presented as the average annual hydrographs before and after the development of key water diversion projects. This figure also compares the actual existing hydrology from the USGS gaging stations following completion of the Windy Gap Project to the average streamflow for the five "Dry Years" used in the DEIS. As can be seen on Figure 1, the actual existing average streamflow hydrology is very close to the Dry Year average flow compared to historic flow conditions. The DEIS does not present any substantive information beyond Figure 5 (page 19, WRTR) to represent the true past and present conditions for comparison to the projected depletions. The projected depletions from the WGFP, as well as the proposed Moffat Expansion project, will further deplete the remaining streamflows such that this section of the Colorado will be approach a 'dry year' in a majority of the years in the future. **Summary of Colorado River Streamflow and Diversions** **Colorado River at Hot Sulphur Springs, CO** | | Approx Avg Annual Flow Volume (ac-ft) | Remaining Avg Annual Flow (ac-ft) | % of Native Flow Volume Remaining | Notes | |---|---|---|---|---| | **Native Flow** | **540,000** | | 100% | Colorado River flow at Hot Sulphur Springs from 1904-1936 (pre-Moffat, adjusted for approximate Grand River Ditch diversions) | | Grand River Ditch | 18,500 | 521,500 | 97% | Based upon CDSS recorded annual diversions from 1975-2007. | | Moffat Diversions | 57,000 | 464,500 | 86% | Based upon Denver Water diversion records at the East Portal from 1975-2006. | | CBT Diversions | 228,800 | 235,700 | 44% | Based upon 1985-2005 diversions as shown in the WGFP EIS (Table 5). | | CBT Evaporation | 15,500 | 220,200 | 41% | Based upon 1975-2007 avg Granby content from BOR and SAC tables from NCWCD, plus full SMR, WC & WG acres | | Windy Gap | 11,100 | 209,100 | 39% | Based upon 1975-2004 diversions as shown in the Windy Gap Firming Project (WGFP) EIS. | | Grand County Uses | 1,200 | 207,900 | 39% | Based on current Grand County demands (3,100 af, UPCO 2003) with assumed 60% return flows | | **Current Flow** | **138,700** | | **26%** | Based upon SEO streamflow records at Hot Sulphur Springs (1985-1994). Note measured flows less than calculated remaining flows. | | Windy Gap Firming Project | 35,000 | 103,700 | 19% | Based upon projected additional future diversions projected in the WGFP EIS. | | Moffat Expansion | 9,300 | 94,400 | 17% | Based upon projected additional future diversions projected in the WGFP EIS. | | **Future Flow** | **94,400** | | **17%** | Equal to the current flow less additional projected diversions. | Notes: CBT evaporation is replaced at confluence with Blue River This table may be revised with information presented in pending EIS information for the Moffat Expansion Project www.bbawater.com Bishop-Brogden Associates, Inc.	conditions (snowpack, precipitation, temperature, and runoff) because of the varying periods used by BBA. Furthermore, the Moffat Tunnel diversion of 57,000 AF should not include Denver Water's diversions from Williams Fork River through Gumlick Tunnel, which occurs downstream of Hot Sulphur Springs. Last, it is not appropriate to compare future WGFP and Moffat Expansion diversions to historical flows as shown in the comment. Effects on flows due to future diversions should be based on a comparison against modeled existing conditions as opposed to historical conditions since the hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations. As discussed in Section 7.1 of the Water Resources Technical Report (December 2007), hydrologic output associated with the action alternative was not compared with historical hydrology for the following reasons: • Demands have changed considerably over the course of the study period, • Certain facilities and reservoir were not in operation for the entire study period, and • River administration and project operations have changed over the study period. Figure 3-3 was revised in the FEIS to include data through 2008 for the USGS gage at Windy Gap. Section 3.5.1.4 in the FEIS was revised to account for the additional water years included when evaluating trends and low-flow conditions. Figure 3-4 in the FEIS was revised to show average daily flows at the Hot Sulphur Springs and Windy Gap USGS gages before and after development of the C-BT and Windy Gap Projects, and is similar to BBA's Figure 1.

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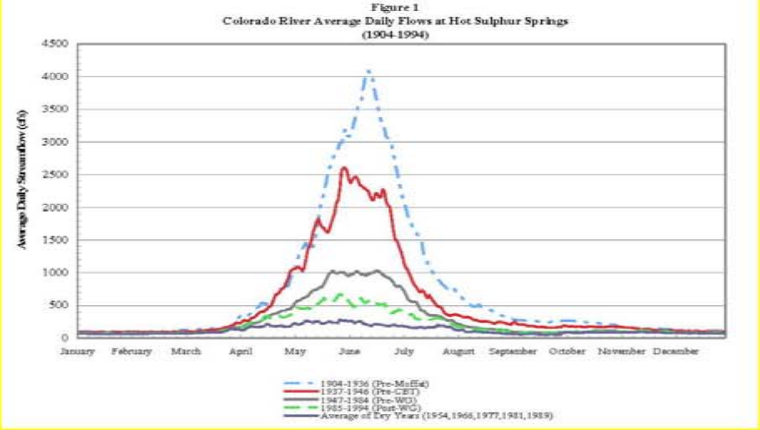
177 178	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 3 Figure 1 Colorado River Average Daily Flows at Hot Sulphur Springs (1904-1994)  2. The DEIS inaccurately represents Existing Conditions for the Alternatives Analysis. The spectrum of hydrologic effects contained in the DEIS for the WGFP (i.e. water diversions, operations, storage, releases, changes in storage and changes in streamflow) for all project alternatives are modeled by comparing the alternatives to the Existing Condition. Further, the evaluation of all water-based effects associated with an alternative, such as water quality, aquatics, stream morphology, ground water, wetlands, etc., are based on the predicted changes in hydrology. However, the DEIS presents an Existing Condition that is not accurate. Specifically, the DEIS states that "The purpose of the Existing Conditions scenario is to model current conditions as if they occurred under the same hydrologic conditions or baseflows that existed throughout the study period (1950 through 1996)." All future alternatives are compared to the Existing Condition as shown on Table 3-2 of the EIS (Table 18 WRTR), which shows an average annual Windy Gap (for both WGFP participants and non-participants) diversion of 36,532 acre-feet (af). This presentation of the Existing Condition is contrary to Table 3 (WRTR) which states that the Windy Gap project historic diversions since construction have averaged 11,080 af per year (1985-2005). This level of historic diversions of the Windy Gap project correspond with the CDSS diversions records, which show average annual diversions of 11,987 af. Based on the text of the WRTR, it appears that the model used indicates diversions of Windy Gap water into Granby Reservoir even though it may spill in upcoming months. However, it is impossible to tell from the results presented in the DEIS for a comparison of how much water is later spilled versus how much is diverted to the Windy Gap users directly or into storage for later delivery. Based on the total average flow quantification upstream and downstream of Windy Gap, it appears that, on average, the flow in the Colorado River will be depleted by 36,532 af/year – indicating that this number is inclusive of Granby spills. Based on this information, the Existing Conditions number used in the DEIS overstates the actual existing conditions by over 300%, and therefore understates future depletions by 25,452 af/year. Further, the model indicates that there are three nodes, or points of quantification, upstream of the Windy Gap diversion dam (Colorado River above Windy Gap); Colorado River below Lake Granby, www.bbawater.com Bishop-Brogden Associates, Inc.	178. The existing conditions scenario is reasonable for evaluation of hydrologic effects for the following reasons. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions with a WGFP. Recent diversions represents the Participants' need for water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 since Granby Reservoir last filled averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action. In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years,

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		which are typically more critical for aquatics, water quality, and other flow-related resources. See response to Comment No. 183 regarding Windy Gap spills and forecasting. Tables 3-2 though 3-4 were revised in the FEIS (Tables 3-6 to 3-8) to include C-BT and Windy Gap spills from Granby Reservoir. Sections 3.5.2.5 and 3.5.2.6 in the FEIS also were revised to provide more information on forecasting and net depletions to the Colorado River due to Windy Gap diversions to clarify how much Windy Gap water is delivered to users vs. spilled. The difference between the three points of quantification (Colorado River below Granby Reservoir, Willow Creek at the confluence, Fraser River at the confluence) and upstream of the Windy Gap diversion is 19,200 AF/yr on average, which is the average annual gain for this reach as determined in the Colorado Decision Support System (CDSS) model. Footnotes were added to Tables 3-6, 3-7, and 3-8 that the Fraser River at the confluence corresponds with outflow from the Scybert Ditch, and Willow Creek at the confluence corresponds with outflow at the Bunte Highline Ditch since these ditches are the furthest downstream nodes modeled on these tributaries in the CDSS model. The gains for the reach described above should not be close to zero as indicated in the comment. NCWCD has completed a point flow analysis of gains in this reach using available gage and diversion data. Gains predicted by the CDSS model are in line with gains estimated by NCWCD. It is not valid to compare modeled existing conditions at the Hot Sulphur Springs gage with historical USGS gage data at that location. That comparison is flawed for the following reasons: • Demands have changed considerably over the course of the study period, • Certain facilities and reservoir were not in operation for the entire study period, and • River administration and project operations have changed over the study period. The Windy Gap Project did not come online until 1985. Therefore, it is inaccurate to evaluate the effects of Windy Gap diversions under the alternatives based on a comparison with historical flows at Hot Sulphur Springs because they do not include the effects of the Windy Gap Project prior to 1985.

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178	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 4 Willow Creek at the confluence with the Colorado River and Fraser River at the confluence with the Colorado River. However, the sum of these three nodes under the Existing Conditions is approximately 19,200 af/year less than the indicated flow at this location. The sum of these three nodes should be nearly identical to the flow available at Windy Gap (allowing for some minor local inflows or diversions). The Technical Appendices to the WRTR presents the modeled average streamflow at various locations. Table D-16 shows the average monthly streamflow for Average, Dry and Wet conditions at Hot Sulphur Springs. We compared the 'Existing Conditions' average monthly streamflows (1950-1996) to the USGS streamgage data for this same location (1950-1994), and note several significant differences: **Comparison of Modeled and Actual Average Monthly Flow** **Colorado River at Hot Sulphur Springs** (all values in cfs) | Data Source | April | May | June | July | Aug | Sept | Oct | Nov | Annual | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | USGS Gage | 276 | 664 | 793 | 403 | 152 | 90 | 96 | 93 | 256 | | DEIS Model | 146 | 278 | 953 | 482 | 170 | 87 | 87 | 83 | 216 | DEIS flows from WRTR Table D-16 for Existing Conditions USGS data for Colorado River at Hot Sulphur Springs (No. 09034500) This table indicates that the streamflow used in the DEIS for Existing Conditions is significantly lower in most months than the actual hydrology at this location. This also indicates that, on average, the modeled streamflow is 40 cfs less than the actual streamflow. Thus, the DEIS understates the actual effects of the action alternatives. For these and other reasons described herein, we believe that the alternatives comparison methodology is flawed and inaccurately represents the effects from the proposed project.	179. The modeling effort for the WGFP began in 2000. At that time, the State's CDSS model study period was not available in a daily time-step format. Therefore, the CDSS model was used in a monthly time-step, which was the best available information at that time. While a daily time-step was not used, monthly model output was disaggregated to daily data for the entire study period for the USGS gages on the Colorado River below Granby, below Windy Gap, at Hot Sulphur Springs, and near Kremmling, and for the gage on Willow Creek below Willow Creek Reservoir. The comment suggests that a daily model was used to evaluate the project new water yield under the WGFP and an independent monthly model was used to evaluate hydrologic effects to the source area of the water supplies. That is incorrect. The WGFP model was developed using two monthly models. The Boyle Engineering Stream Simulation Model (BESTSM) was used in conjunction with the Upper Colorado Water Resource Planning Model from the CDSS model. BESTSM focuses on East Slope C-BT and Windy Gap facilities and operations, while the CDSS model covers the Colorado River drainage on the West Slope. In order to interface with the CDSS model, the West Slope portion of BESTSM downstream to the Windy Gap diversion was adopted from and matches the CDSS model.
179	3. The DEIS modeling does not accurately represent the impacts associated with the WGFP 3.1. Model Time-Step We have significant concerns regarding the model time step used to evaluate West Slope impacts as described in DEIS. We believe that it is inappropriate to use a detailed daily model to evaluate the projected new water yield from additional facilities and additional diversions under the WGFP, and then use an independent, monthly model to evaluate the hydrologic effects to the source area of the water supplies. In Colorado, water rights are typically administered on a daily basis. As a result, the upper Colorado River basin can experience dramatic flow changes due to daily changes in both natural conditions and water administration, as well as the operations of several large-scale water facilities within the modeling area. For example, a Shoshone Powerplant 'call' coming on or off within a month may result in significant changes in streamflow that would not be accurately represented by a monthly time-step. Currently, there are four other EIS documents being prepared or under review associated with Federal permit applications for major water projects in Colorado; • NCWCD's NISP Project • Denver Water's Moffat Expansion Project • Fort Collins/Greeley's Haligan-Seaman Enlargement Project, and www.bbawater.com Bishop-Brogden Associates, Inc.	We acknowledge that the Upper Colorado River basin can experience dramatic flow changes due to daily changes in both natural conditions and water administration; however, that does not preclude the use of the monthly model for purposes of the WGFP EIS. The Windy Gap water right is primarily controlled by downstream instream flow requirements and the Shoshone call. During months the Shoshone call is entirely on or off, the total monthly amount available for diversion by Windy Gap would be the same in both a monthly and daily time-step model. The time-step model is only an issue in situations when the Shoshone call changes during the month. The difference in Windy Gap diversions due to the time-step model in these situations equals the sum of daily differences in flow in excess or deficit of the calling rights, depending on whether the call is on or off for a portion of the month. This difference is low since Windy Gap often does not divert or diverts small amounts in April when the Shoshone call typically comes off. Similarly the Shoshone call typically comes back on late in the runoff season (mid- to late July) again when Windy Gap is either not diverting or diverting small amounts. Windy Gap diversions are more often limited by downstream instream flow requirements as opposed to the Shoshone call. Differences caused by the time-step model in a dry year are not an issue because the Windy Gap Project would divert the same amount of water with or without a firming project. There are no hydrologic changes due to the firming project regardless of the time-step model used in dry years.

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179	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 5 • Colorado Springs Utilities' Southern Delivery System (SDS) Three out of these four projects, the Moffat, Haligan-Seaman and SDS projects, are being evaluated using a daily operations model. Only the NISP project, also being initiated by NCWCD, uses a monthly model to evaluate effects. The Moffat Project and the WGFP both propose additional diversions from essentially the same source, the Fraser River (since Colorado River flows above Windy Gap are largely captured by the Colorado-Big Thompson (CBT) project). Further, the depletions from both projects affect essentially the same general area and stream segments, aquatic environment, recreation, water quality, etc. In our opinion, it is both inaccurate and inappropriate to use a monthly model, when a daily model already exists for the exact same study area (DW's PACSM model, which was also originally constructed by Boyle Engineering). For this and other reasons described herein, we believe that the effects from both projects should be considered together using the same daily model.	The comment suggests use of Denver Water's PACSM for the WGFP EIS. While PACSM is a daily time-step model, some input to that model was derived based on a disaggregation of monthly data to daily data in a manner similar to the approach used to disaggregate monthly WGFP model output to daily data. Some types of model input data are unavailable (e.g., reservoir contents) or sporadic on a daily basis. In those instances, Denver Water employed data filling and disaggregation techniques prior to running the model using a daily time-step. Depending on the amount of daily data that needs to be estimated, the overall accuracy of a daily model may not be significantly greater than a monthly model. The CDSS model was run using a monthly time-step and then disaggregated to daily data. This approach is less accurate than running the model in a daily format primarily during the rising and falling limbs of the hydrograph (April and August). Because Windy Gap diversions during these periods are typically low, model results were reasonable for assessing hydrologic changes, particularly since hydrologic effects are based on a relative comparison of the alternatives to existing conditions. We believe the monthly WGFP model is appropriate for use in generating information to analyze hydrologic effects and that use of Denver Water's daily PACSM is not required.
180	3.2. Model Study Period We also have significant concerns regarding the modeling period used to evaluate WGFP effects (1950 – 1996). We recommend that any model used to evaluate the effects of the WGFP should include hydrologic and water operations data up through at least 2005. The drought during the early part of this decade, which we may still be suffering from, is well-documented as being the most severe on record at many locations. We understand that during single drought years, such as 2002, the WGFP may not have been able to divert (although this may not be true in the future due to the Shoshone call relaxation agreement discussed below), however the record-low streamflows in 2002 can have carry-over effects on water operations, water storage, water administration, water quality, recreation and other aspects of the WGFP. The dramatic changes in water operations and water supplies in the years following 2002 are an example of why this period needs to be included in the assessment of impacts. For example, the four highest total annual diversions for the Windy Gap project occurred in the years immediately following 2002; 2003, 2005, 2006 and 2007. This is likely due to significantly increased demand for water to refill Windy Gap users' reservoirs, coupled with significant storage space available in general and, in particular, in Lake Granby. This may also be partially due to the fact that in 2002 the CBT project was unable to deliver its annual "Quota" to its shareholders for the first and only time in the 60-year history of the project. As the operations of the Windy Gap project are intertwined with CBT operations, these significant modeling events need to be included in any analysis of effects. For example, the end of month storage records for Horsetooth Reservoir, a CBT project reservoir, show that it reached the lowest monthly levels of all-time in 8 of the 12 months in 2002 in 2003. This is likely a component of the record diversions of the Windy Gap project in 2003. Further, many streamgages in the upper Colorado River basin, including the WGFP modeling area, recorded the lowest streamflows ever during this time period. In particular, 2002 and/or 2004 are in the "Top 5" driest years at several locations throughout the basin of impact, and should be modeled as part of their dry-year averages (see table below). Any evaluation of effects to streamflow, water operations, water quality, stream morphology, recreation, etc. may be significantly inaccurate without considering this data. We also note that the model relied upon for West Slope impacts, CRDSS, has been extended to include 2005 data and is presently available. www.bbawater.com Bishop-Brogden Associates, Inc.	180. See response to Grand County Comment No. 7.

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180	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 6 **Colorado River High/Low Annual Streamflow Comparison 1950 - 2005** 1950-2005 Fraser at Winter Park; 1954-2005 Colorado blw Baker Gulch; 1962-2005 Colorado nr Kremmling; 1950-2005 Colorado nr Dotsero **Top 5 Wettest** 1984 34,081 / 1984 79,294 / 1984 1,772,380 / 1984 3,064,944 1957 33,045 / 1983 77,719 / 1983 1,321,769 / 1983 2,394,818 1995 32,595 / 1997 77,054 / 1997 1,260,346 / 1997 2,370,025 1983 31,712 / 1995 72,782 / 1962 1,239,785 / 1957 2,338,400 1996 23,256 / 1986 66,978 / 1996 1,141,010 / 1962 2,332,556 **Top 5 Driest** 1966 5,017 / 1977 25,856 / 1964 418,582 / 1981 850,017 1964 4,706 / 1989 25,712 / 1981 406,927 / 2004 829,383 2002 4,617 / 1981 22,787 / 1963 401,375 / 1954 803,510 1963 4,557 / 1954 20,353 / 2004 373,800 / 1977 766,998 1954 4,011 / 2002 18,063 / 2002 362,861 / 2002 626,028 The years highlighted in yellow are NOT included in the WGFP modeling for these locations.	
181	Another example of the effects of the 2002 drought sequence is shown by the storage levels of Wolford Mountain Reservoir (WMR). This reservoir came on-line in approximately 1995, but was "turned on" for the entire period of record in the DEIS model in the Future Conditions model. The chart below shows the total storage volume for WMR since construction, and clearly shows a dramatic drop in storage levels in 2003 - 2005. It is not clear if and how such operations were modeled in the DEIS. By extending the model period, it would capture all of the known operational data during this extreme event. www.bbawater.com Bishop-Brogden Associates, Inc.	181. Reductions in Wolford Mountain Reservoir contents in dry years due to releases to meet contract depletions that are out-of-priority, Denver Water's and Colorado Spring Utilities' substitution repayment obligations, and for fish flow purposes are captured in the current study period in years such as 1954, 1977, and 1981. Information on how Wolford Mountain Reservoir is modeled in the CDSS model is available in Section 4.1 of the *Windy Gap Firming Project Modeling Report Addendum (Boyle, July 2006)* and *Colorado Decision Support System Colorado River Basin Water Resources Planning Model, Final Report and Appendices (Colorado Water Conservation Board, Colorado Division of Water Resources, July 2000).*

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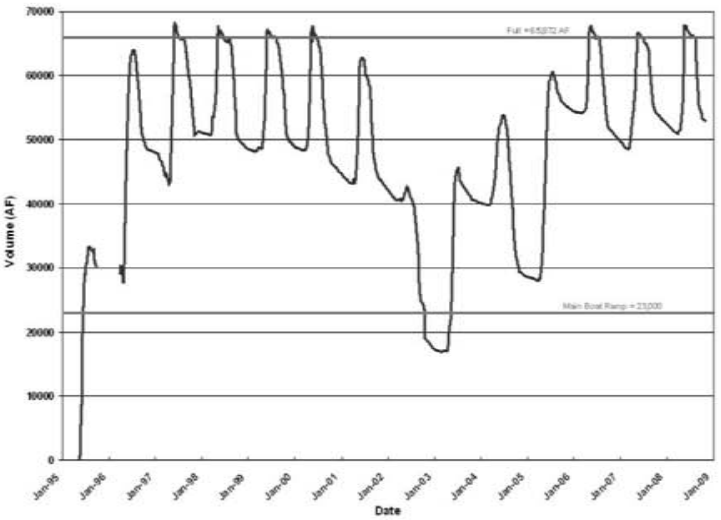
181 182	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 7 **Wolford Mountain Reservoir Historic Volume**  Source: Colorado River Water Conservation District 3.3. Disaggregation of Daily Flows The methodology used to estimate daily changes in streamflow is flawed and inaccurate. This is due to the fundamental assumption regarding the use of the daily disaggregation factors to evaluate effects. The WRTR states that "absent any flow changes due to the WGFP, the historical relationship between daily and total monthly flows should apply to total monthly flow estimated by the model." However, the report later concludes that annual streamflows may be reduced by as much as 157,000 af/year (WRTR Table 32); presumably this reduction would occur during the months of May through July. The report also states that the monthly streamflow at certain locations may be increased by up to 25% and reduced by as much as 37% (Section 8.6). These changes projected by the model represent a dramatic alteration of the existing hydrologic record, and should not be relied upon as an accurate means of predicting daily changes in streamflow. It is our understanding that the creation of daily flows was based on disaggregation of the long-term average daily streamflow as a function of the monthly total. The flow regimes in the upper Colorado River basin are highly variable, from month to month, year to year and, in particular, subject to extreme changes from wet years to dry years. As an example, we compared the long-term average daily streamflow for the months of May and July (replicating the disaggregation factors used in the analysis) to the actual streamflow for one of the "wet" and "dry" years indicated in the modeling. As is evident on the graphs below, there are dramatic differences between the average, wet and dry conditions that are not captured by the DEIS model. Even using the modeled average monthly flows presented in Table D-14, it shows that average year flows are reduced from 472 cfs to 365 cfs in July (reduction of 108 cfs, or 23%) and wet year flows are reduced from 1716 cfs to 1265 cfs in the same month (reduction of 450 cfs, or 26%). www.bbawater.com Bishop-Brogden Associates, Inc.	182. Under direct effects, it is reasonable to assume that absent any flow changes due to the WGFP, the historical relationship between daily and total monthly flows should apply to total monthly flow estimated by the hydrologic model, since predicted flow changes are due to WGFP operations (e.g., diversions and spills). Under cumulative effects, reasonably foreseeable actions would contribute to flow reductions and may alter the relationship between daily and total monthly flows. However, the basic pattern of the hydrograph is expected to be maintained, flows would rise during runoff in April, May, and June; reach a peak; and then diminish during July and August. Little change in baseflows and the pattern of daily flows during the month is expected from September through March. Under direct effects, the average annual flow reduction at the gage near Kremmling under the Proposed Action would be approximately 21,300 AF/yr compared to existing conditions. The average reduction in streamflows of 157,000 AF/year near Kremmling under the Proposed Action cited in the comment refers to wet year average annual flow reductions under future conditions with reasonably foreseeable actions. This represents an average annual flow reduction of about 13%. Therefore, the majority of flow in the stream would likely continue to reflect a pattern similar to the historical relationship between daily and total monthly flows. Figure 3-4 shows there has been little change in the general shape of the hydrograph based on a comparison of the average daily flow for the 1950–1984 period versus 1985–2008 even though Windy Gap Project came online in 1985. Daily streamflows were generated using two methods. Average daily disaggregation factors were calculated as the average of all daily percentages available for each day. These long-term average daily disaggregation factors were used to generate daily flows and hydrographs for average, wet, and dry conditions, which were relied on to generally characterize hydrologic changes associated with the alternatives. Separate dry and wet year disaggregation factors were not developed because USGS gage data did not exist for all of the selected wet and dry years at several locations. In which case, daily disaggregation factors for dry and wet conditions may reflect only one or two years. Given the limitations in using long-term average daily factors to generate average, wet, and dry daily hydrographs described in the comment, monthly model output also was disaggregated to daily data for the entire study period for the USGS gages on the Colorado River below Granby, below Windy Gap, at Hot Sulphur Springs, and near Kremmling, and for the gage on Willow Creek below Willow Creek Reservoir. The disaggregation of monthly flows relied on historical daily data for nearby USGS gages, which reflects the variability in streamflows from month to month and year to year. Daily disaggregation factors were developed as follows: for each day that data were available during the 1947–1996 study period, the percentage of flows that occurred on that day was calculated as the daily flow

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		divided by the total flow that occurred in the corresponding month. The daily disaggregation factors were applied to the monthly flow data at the corresponding gage to develop daily flows. See Section 4.2.4 in the Water Resources Technical Report for a detailed discussion of the process used to disaggregate monthly model output. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, dry, and wet conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes, and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D Model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods with or without the alternatives assessed to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, the No Action Alternative, and for each of the EIS Alternatives. Because there are no hydrologic impacts due to the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for non-drought conditions.

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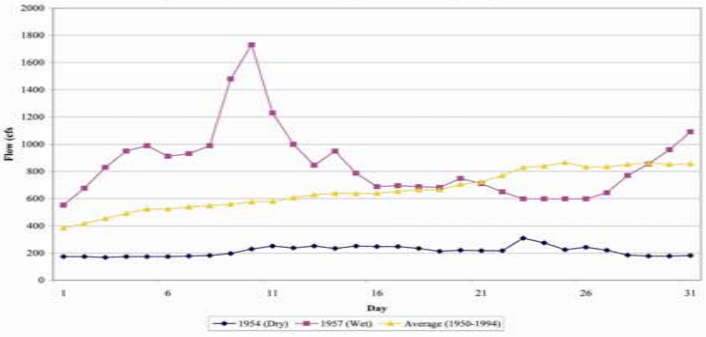
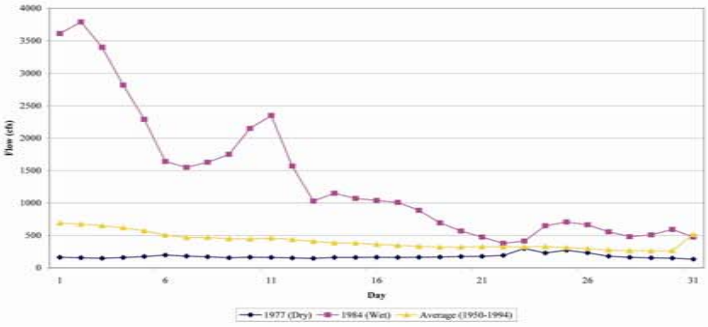
182	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 8 The dry-year flows for the same month are 127 cfs. The use of the long-term average daily flows to generate the factors to represent daily flows in all years, wet (1716 cfs), average (472 cfs) or dry (127 cfs), is inappropriate and can be highly inaccurate. In other words, the daily pattern of streamflows within a given month is not the same from year to year, even within two "average" years. This difference is even more pronounced between wet and dry years, and will result in inaccurate predictions of daily flows. For these reasons, we believe that the application of the disaggregation factors can be highly inaccurate resulting in daily flow estimates that are flawed. As noted above, using a daily point-flow model such as PACSM would alleviate the errors from the disaggregation methodology used in the DEIS. **Colorado River at Hot Sulphur Springs** **May Comparison of Average, Wet & Dry Daily Streamflow**  **Colorado River at Hot Sulphur Springs, CO** **July Comparison of Average, Wet, & Dry Daily Streamflow**  	183. A forecasting function was not included in the WGFP model because assumptions regarding project operations required for forecasting are questionable and do not correlate well with actual operations. The annual decision to pump Windy Gap water takes into consideration many factors including snowpack, Granby Reservoir C-BT and Windy Gap contents, precipitation, Big Thompson River basin forecasts, and orders for Windy Gap water. Incorporating a forecasting function in the model would require making a number of assumptions regarding the variables listed above; which may or may not improve the accuracy of model output. Forecasting does not eliminate Windy Gap spills as evidenced by historic Windy Gap spills in 1995 and 1996. For example, Windy Gap water was pumped in May and June of 1995, yet Granby Reservoir spilled in July that year. As the model is currently configured without a forecasting function, Windy Gap diversions occur as long as there is available storage space. Windy Gap operations were simulated in this manner to present the amount of water that could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. As a result, Windy Gap diversions may be greater in some wet years; however, historic operations show that Windy Gap water would be pumped in some wet years under existing conditions. In the model, when Granby Reservoir fills and spills in wet years, Windy Gap water pumped in April and May is often spilled in June and July. In effect, early season Windy Gap diversions are retimed as spills later in the season. Early season diversions only occur in wet years when Granby Reservoir fills and occurs much less under the Proposed Action and Alternatives 3, 4, and 5 because Windy Gap diversions early in the season would be stored in firming reservoirs as opposed to Granby Reservoir.
183	3.4. Granby Spills in the Model The operation of the model is discussed in Section 7.4.1.1, page84. The DEIS model overestimates probable actual WGFP pumping that would later spill due to a lack of a forecasting tool in the model. Windy Gap water rights, with or without the WGFP, should have little or no impact on the flows in the Colorado River immediately below the Lake Granby dam but before Windy Gap. Yet the DEIS reports that the Preferred Alternative will result in over 5,000 www.bbawater.com Bishop-Brogden Associates, Inc.	Lack of a forecasting function in the WGFP model may increase Windy Gap diversions, and consequently spills, in some wet years under existing conditions and No Action; however, the impact analysis based on net depletions to the Colorado River below Windy Gap is still valid (see response to Comment No. 178). Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources.

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183	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 9 af/yr less flow below Lake Granby than under the No Action Alternative (the comparison should be to existing conditions). Windy Gap water is pumped in the model even when Granby is certain to spill. Since CBT spills more frequently in the No Action Alternative, there are more Windy Gap spills in the No Action Alternative. Under the Preferred Alternative, when the Windy Gap spills decrease, the flow below Lake Granby decreases. In reality, with adequate forecasting, these Windy Gap spills would be less likely to occur, and therefore the flows immediately below Lake Granby would see little change. We recommend that the model be modified to include some form of forecasting to reduce this effect. As is, the DEIS dramatically overstates the WGFP pumping and the reduction in streamflow in the Colorado River between Lake Granby and Windy Gap.	As pointed out in the comment, the stretch of river that is most impacted by the lack of a forecasting function is the Colorado River below Granby Reservoir downstream of the Windy Gap diversion; however, the impact analysis for this reach is conservative. Flows in this reach may see less change than predicted in the model because of additional Windy Gap spills in June through August under existing conditions and No Action. Since the impact analysis is conservative for this reach, the model was not modified to include forecasting.
184	3.5 Foreseeable Actions We believe that the DEIS fairly accurately considers future actions that can reasonably be considered foreseeable, and reports that most were incorporated into the Future Conditions model. However, the DEIS does not incorporate one of the key future conditions that we believe will have a dramatic effect on future water operations in this area and therefore needs to be included; the Shoshone Call Reduction (by virtue of DW's contract with Xcel). The DEIS does not indicate why this future condition was not included. The Shoshone Call Reduction is a long-term agreement that has been enacted since the modeling for this DEIS, and very likely will be implemented in the future. Although the implementation of this agreement may occur in principally drier years, when Windy Gap diversions may otherwise be reduced, it is still critical to include it in the model. The diversion records for the Windy Gap project for the year immediately following the 2002 drought provide a dramatic example. Prior to 2002, the highest volume pumped by the Windy Gap model was 21,896 af (1992, Table 3 WRTR). However, in the following dry year of 2003, during which the Shoshone agreement was being implemented, the Windy Gap project pumped a total of 64,200 af – nearly three times the prior maximum. Although the WRTR reports that only 7,850 af of this can be attributed to the Shoshone call reduction agreement, this amount should be included in the modeling to accurately assess the changes in both water operations and environment effects.	184. The future operation of the Shoshone call reduction was not included in the WGFP model; however, a detailed discussion of the potential frequency and magnitude of hydrologic effects when the call reduction is in place is provided in Section 8.4.2.6 under the subsection Colorado River in the Water Resources Technical Report (ERO and Boyle 2007). The Shoshone call reduction was not included in the model because information on the conditions under which it would occur was not available for a significant portion of the study period. Streamflow forecasts for the Colorado River at Kremmling were not available and streamflow forecasts for the Colorado River at Dotsero did not exist prior to 1969. In addition, invoking the call reduction is at the discretion of Denver Water, even if all conditions of the agreement are met. Last, the agreement requires that Denver Water make available 10 percent of the net water stored or diverted by Denver Water by virtue of the call relaxation to West Slope entities. However, the West Slope beneficiaries and the timing and amount of deliveries are not specified in the agreement. Due to the difficulty in incorporating this action in the model, the evaluation of potential hydrologic effects presented in the Water Resources Technical Report and summarized in the DEIS was based on historical data. This analysis was appropriate particularly since Windy Gap diversions with or without the firming project would be the same under a Shoshone call reduction since available storage capacity in Granby Reservoir would not be a limiting factor in dry years.
185	4. The WGFP does not provide Middle Park Water Conservancy District (MPWCD) a firm annual supply of 3,000 af. Based on the 1980 Azure Settlement Agreement(s), Northern (MSD) committed to provide 3,000 af of water **per year** to MPWCD as part of the approvals of the Windy Gap project. It is well-known that, despite the presentation of information at the time, the Windy Gap project has not been able to deliver this water to MPWCD every year. The DEIS explains that the WGFP will 'firm up' approximately 26,000 af per year to the WGFP participants based on new diversions and storage facilities, but DOES NOT proposed to firm up the original contractual commitment to the West Slope of this 3,000 af per year. Rather, the Purpose and Need statement for the WGFP states that it will "…provide up to 3,000 af **of storage** to firm water deliveries for the Middle Park Water Conservancy District" (emphasis added). The commitment of storage space is NOT the same as the firm annual delivery of water. In fact, the DEIS proposed actions result in a firm yield to MPWCD of approximately 429 af per year – only 14% of the original obligation. This is completely unacceptable. Any new project that results in the "firming-up" of water under the Windy Gap project needs to first provide 3,000 af per year to MPWCD before any Windy Gap users receive delivery of any water under the project.	185. Paragraph 2 of the "1985 Supplement" to the "1980 Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project" states that "The Subdistrict will dedicate and set aside annually, but noncumulatively, at no cost to Middle Park, 3,000 AF of water in Granby Reservoir that is produced each water year from Subdistrict water supplies, for beneficial use without waste, either directly or by exchange or substitution in Middle Park." The Subdistrict has no obligation to provide water to Middle Park in any year when such water cannot be produced from Subdistrict supplies. Middle Park has been offered the opportunity to participate in the WGFP and improve their yield with storage in much the same manner as other WGFP Participants.
186	5. A copy of the model needs to be made available to all interested parties. We believe that a copy of the DEIS hydrology model needs to be made available to interested parties so that a thorough review and understanding of the model and its results can be made. Such a review may eliminate some of the questions and uncertainties, or reveal areas where the model may be improved resulting in more accurate results and conclusions. We believe that any representations regarding impacts from a project of this magnitude needs to made using a model that has been peer-reviewed and critiqued by all the major stakeholders. As discussed below, a thorough comparison of the model results from www.bbawater.com Bishop-Brogden Associates, Inc.	

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	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 10	186. The hydrology model was developed specifically for the WGFP and is not available for general distribution. In previous discussions and meetings with Grand County to discuss and explain the model, Reclamation has offered to run specific model scenarios for Grand County if Grand County provided the necessary information. In the spirit of cooperation, Reclamation renews that offer. If there are specific scenarios that Grand County would like analyzed using the hydrology model, Reclamation will work with the proponent and try to get the information run through the model and make the output available to Grand County. Additional information on the hydrology model including calibration information is included in the Modeling Report Addendum dated July 2006. A draft version of this report was provided to Grand County in late 2004. In March 2005, Reclamation received extensive comments from Grand County on the model and its use. These comments were considered in developing the Modeling Report Addendum dated July 2006. The July 2006 report includes extensive information on development and use of the Hydrology Model for the Windy Gap Firming Project including information on calibration.
186	Denver Water's PACSM related to the Moffat Expansion Project needs to be made prior to proceeding with either project.	
187	6. The EIS analysis needs to be combined with the Moffat Expansion Project. As described in the Cumulative Effects section of the DEIS, Denver Water's Moffat Expansion Project will result in additional depletions to essentially the same source of water as the WGFP. Because the CBT project already captures nearly all of the available streamflow from the Colorado River system above Windy Gap (except for the minimum bypass flows), the vast majority of the yield to Windy Gap is derived from inflows from the Fraser River. Therefore, both projects divert from essentially the same source. Further, both projects will have cumulative effects to the nearly identical segments of the Colorado River system. Both projects will need to evaluate nearly identical hydrologic, environmental, recreational, socio-economic, etc., effects from the projects. In our opinion, it is highly illogical to evaluate both projects using completely independent methodologies. At a minimum, we believe that this EIS needs to be tabled until completion of the EIS for the Moffat Collection System such that an "apples-to-apples" comparison of the results can be made.	187. See response to Grand County Comment No. 44.
188	7. The DEIS does not address the need to modify the Lake Granby outlet structure with pre-positioning. As stated in the DEIS, the WGFP should not result in changes to the operation of the CBT project. Under the Preferred Alternative, if prepositioning is allowed, large volumes of CBT water will be stored by prepositioning in Chimney Hollow Reservoir. Any CBT water stored in Chimney Hollow will need to be accounted for as CBT water in Lake Granby to prevent an enlargement of the CBT water rights and additional new depletions to the Colorado River. As a result, if for example, there is 50,000 ac-ft of CBT water stored in Chimney Hollow, Lake Granby should reach a "paper fill" when the Lake Granby CBT contents reach approximately 490,000 ac-ft (Lake Granby's total capacity less 50,000 af). When this happens, all inflows to Lake Granby in excess of the CBT direct-flow rights should start to "spill" – as if the reservoir was physically full like it would be without pre-positioning. Therefore, prepositioning could create occurrences in the future when Lake Granby water levels will not be at the spillway, but the inflows will be in excess of the 440 cfs outlet capacity. According to the DEIS, inflows could be greater than 3,000 cfs and, in fact, have historically been over 4,000 cfs. The outlet from Granby Reservoir will need to be modified to allow for releases of this magnitude in order to prevent this excess inflow from being stored, which would constitute an enlargement of the CBT water rights, or at the very least, a retiming of inflows that would have otherwise spilled from the dam. This is the way NCWCD has modeled the Preferred Alternative; however, the modeled results cannot actually occur in the future without the modification to the outlet works a capacity of 3,000 cfs or greater.	188. The spillway at Granby Reservoir consists of an ogee crest at an elevation of 8,260 feet, which is approximately 130,000 AF below the full level; and two radial gates that can be used to regulate spillway flows. If a paper fill is achieved and inflows greater than 440 cfs outlet capacity, the spillway gates would be operated to pass inflow and prevent the situation mentioned in the comment. The combined capacity of the spillway gates and outlet increases from 440 cfs at elevation 8,260 to over 12,000 cfs with a full reservoir.
	Water Resources Technical Report – Detailed Comments	189. Under the Proposed Action, C-BT storage at Granby Reservoir and Chimney Hollow Reservoir is limited to the active capacity of Granby Reservoir, which is 465,568 AF. This equals the total storage capacity of 539,758 AF minus the dead storage of 74,190 AF.
	The following provides a summary of our concerns and comments regarding specific sections of the WRTR. The concerns are described sequentially with the report and reference specific pages or sections. Page 2:	190. The operational storage *targets* would not change for the C-BT Project with 90,000 AF of storage available at Chimney Hollow. For example, the same storage targets were modeled for Carter Lake and Horsetooth Reservoir for existing conditions and the Proposed Action. Operations at the WGFP reservoirs are discussed in Chapter 2 of the DEIS. There would be differences in C-BT and Windy Gap storage contents under the Proposed Action in C-BT reservoirs compared to existing conditions, which are discussed in Section 3.5 of the DEIS and in Chapter 7 of the Water Resources Technical Report.
189	• The modeling needs to limit the operational storage capacity at both Granby and Chimney Hollow Reservoirs to the current active capacity of 465,568 af for Lake Granby.	
190	• The DEIS needs to show how, with 90,000 af available for storage at Chimney Hollow, the operational storage targets will change for both CBT and Windy Gap water.	
191	• Regarding the No Action alternative, the report states that "Most participants indicate that in the long term, they would seek other storage options… to firm Windy Gap water…" We	
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191	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 11 agree with this statement, that most participants will seek to find ways to firm up the Windy Gap water on their own. In fact, the original "Environment Statement" for the Windy Gap project (1981) stated "*It is anticipated that this storage requirement could be accommodated either by utilizing available storage in Granby Reservoir for longer periods and/or by utilizing East Slope storage currently owned or leased by Windy Gap participants. -- Since there is currently over 400,000 acre-feet of privately owned storage within the boundaries of the Conservancy District with only a present demand for approximately 30,000 acre-feet, it is logical to assume that the storage requirements for Windy Gap water are present without dependence upon new reservoir construction along the Front Range*. (Page IV-68). This indicates that the overall Purpose and Need for the project, as well as the alternatives analysis are flawed, as there may be less-environmentally damaging alternatives than the ones discussed in the DEIS. The DEIS needs to thoroughly develop the No Action alternative to confirm that there is a need for this project and the alternatives presented for review.	191. The purpose and need for the project was considered in detail as documented in the *Windy Gap Firming Project: Purpose and Need Report* (ERO 2005). More than 170 alternative plans were evaluated, including construction of new reservoirs, expansion of existing reservoirs, re-regulation of existing reservoirs, ground water storage, and nonstructural and institutional options. Results of the alternatives analysis are documented in the *Windy Gap Firming Project: Alternatives Report* (ERO 2005). The alternatives screening process was based on Section 404(b)(1) criteria in concert with the Corps, and resulted in the alternatives considered in the EIS. The No Action Alternative also was developed as part of the alternatives process and provides the most likely course of action if Reclamation does not enter into a new or amended contract with the Subdistrict for the Proposed Action. More discussion of the No Action Alternative is found in response to Comment No. 26.
192	Page 3 We recommend that the active modeling area be extended downstream to the Dotsero streamgage. This would incorporate the anticipated depletions upstream of Shoshone from projected growth in the Eagle River basin, and would allow for an evaluation of the effects from the construction of Wolcott Reservoir as a potential source for the 10,825 water.	192. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. Regarding future potential projects downstream of Kremmling, see Section 8.1 of the Water Resources Technical Report for a discussion of the criteria for identifying reasonably foreseeable actions. Wolcott Reservoir was not considered reasonably foreseeable and is currently not a component of the proposed project to supply 10,825 AF of water for Colorado River endangered fish, which is being evaluated in a separate Environmental Assessment.
193	Page 4 The first full sentence starting with "Flow changes, as a percentage of total streamflow,…" should be deleted. This presents conclusions without context and may prejudice readers of this document.	193. See response to Comment No. 192. The reader can refer to Chapter 7 of the Water Resources Technical Report for a discussion of the data used to define the study area.
194	Page 9 4.2.1 We believe that the model time step produces highly inaccurate results. See our overall concerns above regarding the model time step used to evaluate West Slope impacts.	194. See response to Comment No. 179.
195	4.2.2 We believe that the modeling period does not accurately reflect changes in hydrology and any associated water-based effects, and must be extended through at least 2005. See our overall concerns above regarding the modeling period used to evaluate WGFP effects.	195. See response to Comment No. 180.
196	4.2.4 The use of disaggregation factors to predict daily flow is highly inaccurate, and the associated evaluation of flow effects is flawed. See our overall concerns above regarding the daily disaggregation factors to evaluate the effects.	196. See response to Comment No. 182
197	Page 15, last paragraph The letter from the former State Engineer indicating that he *could* administer the CBT and WGFP system in compliance with the current decrees is misleading and does not indicate approval of this practice. Only the water court or modifications to the Blue River decree in District Court can approve the storage of CBT or Windy Gap water in new facilities. Currently, the water rights for the CBT project and the Windy Gap project are not decreed to allow for storage at Chimney Hollow and some of the other action alternatives. These rights will need to be changed in water court before water can be diverted pursuant to any of the action alternatives.	
198	Page 16, 6.1.1.2 • The report should specify that the USGS ceased operations at the Hot Sulphur Springs gage (09034500) in 1994, but that NCWCD has maintained a gage near this site since 1989 during the summer months only. However, we note that a comparison of the records for these two nearly-identical locations have several extremely large discrepancies. If the DEIS model used data from NCWCD, it may be inaccurate.	
199	• This section should present a significant discussion and show much more detailed information regarding the full history of streamflows and stream depletions to this region, not just the flows averages before and after CBT. See our overall concerns above regarding the presentation of historical hydrology above.	
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		197. The FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. 198. Section 3.5.1.4 in the FEIS was revised under the subsection Colorado River to specify that the USGS gage at Hot Sulphur Springs ceased operations in 1994. The DEIS model did not use data from NCWCD for their gage near that site. 199. See response to Comment No. 177.

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200	Table 2, page 21 This table shows the historical spills from Lake Granby from 1957 - 2001, which shows that there have been 15 years of spill during this time, or 1 out of 3 years on average. However, we note that Granby spilled 6 years in a row from 1995-2000, with the previous duration of 4 consecutive years. The model used to evaluate WGFP yields, which are highly vulnerable to Granby spills, only captures 2 years of the longest period of historic spills. This is another example of why the hydrology used for the modeling should be extended to include the time period up through at least 2005.	200. The study period from 1950 through 1996 includes an adequate number of years that Granby Reservoir spilled to evaluate differences in Windy Gap diversions in wet years due to the addition of firming storage. The period from 1983 through 1986 when Granby Reservoir filled and spilled is similar to the period from 1995 through 2000 in terms of representing Windy Gap diversions in sequential spill years.
201	Table 3, page 22 There are differences in monthly and total annual volumes of water pumped between this table and the official diversion records maintained by the SEO as shown on CDSS. Although the differences are minor in most years, we note that there is a large discrepancy in June of 2005 (19,520 af). The DEIS needs to explain these differences.	201. A table of Windy Gap diversions (Table 3-2) was added to Section 3.5.1.4 of the FEIS under the subsection Colorado River, and diversions in 2005 were corrected. Minor differences between CDSS and NCWCD records are largely due to differences in converting cfs to AF. The CDSS database used 1.9835 AF/cfs to convert cfs to AF, whereas 2.0 AF/cfs was used in Table 3 of the Water Resources Technical Report. Differences due to the conversion factor were revised in the Windy Gap diversions table inserted in the FEIS. If there are differences in other months that are not attributable to the conversion factor, the data provided from NCWCD accurately reflect the amount pumped at Windy Gap.
202	Table 4, page 23 The table should also show the average annual number of days pumped, which is significantly less than the sum of the monthly average days. Based on the records available on CDSS, the Windy Gap project pumped approximately the same average annual volume (just over 11,000 af/year) before and after 1996 (the end of the model study period). However, the duration of pumping is significantly different for these two time periods. The Windy Gap project pumped water for an average of approximately 30 days per year during the model study period, but averaged approximately 57 days per year since 1996. This means that the project diversion season has recently been nearly twice as long as the data used in the model analysis. The model may therefore inaccurately predict the effects of pumping to the source area. This is another reason to extend the model through at least 2005 to more accurately capture both the project operations and hydrologic effects.	202. The average annual volume pumped before and after 1996 is not the same as indicated in the comment. The average annual pumping from 1985 through 1996 was 11,073 AF/yr vs. an average of 18,298 AF/yr for the period from 1997 through 2008. In addition, the average from 1997 through 2008 is skewed by the fact that no Windy Gap water was pumped from 1997 through 2000 because Granby Reservoir filled. The duration of pumping is higher since 1996 because Windy Gap diversions have increased. The Participants' demand for Windy Gap water has increased due to growth and their need for reusable supplies. The comment indicates that historical Windy Gap pumping data was used in the model analysis and, therefore, reflects a shorter pumping duration. That is incorrect. The model reflects the Participants' current demand for Windy Gap water; therefore, the duration of pumping in the model is consistent with current operations and demands. The average annual number of days Windy Gap was pumped was not added to Table 4 since average monthly values were sufficient to present the typical pumping schedule.
203	Figure 6, page 24 The records and calculations used to support this figure need to be provided in the DEIS.	
204	Table 6, page 25 This table of existing Colorado River water rights is missing several large capacity ditches that divert from the upper Colorado River. The report should also include a list of water rights shown on the tabulation, and not included in the model, including the reasons they were not considered. The text on page 23 states that these water rights were incorporated into the hydrologic model, but doesn't discuss the details of how they were modeled. Previous EIS information indicated that these water rights were included in the model based on their priorities as tabulated by the Division Engineers Office. We believe that the DEO tabulation of these priorities is incorrect, as they should be administered as senior to the CBT project. Previous EIS information has also indicated that these rights would not be entitled to divert during times of Shoshone call. However, the modeling is inaccurate as these rights are currently entitled to divert due to protection from the HUP account in Green Mountain Reservoir allowing them to divert during times of a Shoshone call.	
205	6.4.1 West Slope GW Hydrology and Quality This section makes several conclusions that are not supported by technical evidence described in the DEIS.	
206	Table 10 (page 41) We note that 5 of the 13 WGFP Participants are also participants in the proposed NISP project. While we understand from NCWCD staff that the future water demands of these entities is more than the combined potential yield from both projects, this DEIS should provide more detailed information about the joint participation in both projects and the consequences if one or both projects are not developed.	
207	7.1, page 59 This section states that the WGFP Participants existing demand for Windy Gap water is approximately 21,045 af/year, whereas the No Action demand is approximately 40,765 af/yr. Given that several of the participants have an immediate need for additional water and significant levels of projected future demands, the DEIS needs to state in detail why the demands will rise for all the alternatives compared to existing conditions. The demands presented in DEIS appear to be designed to meet and exceed available supplies, and not represent demands that were determined by analysis.	
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		203. An EIS is not intended to present all of the information available that was used in the development of the EIS. 40 CFR 1502.21 directs Federal agencies to incorporate material into an EIS by reference to "cut down on bulk". A substantial amount of information on the hydrologic effects of the WGFP was generated during preparation of the EIS. Where appropriate, that information is included in the Water Resources Technical Report and other referenced sources. The WGFP would not effect C-BT diversions from the Colorado River, thus this figure was not included in the EIS. 204. The purpose of Table 6 was to list the *major* decree water users that divert from the reach of the Colorado River from Granby Reservoir to the gage near Kremmling that are modeled explicitly in the CDSS model. Other ditches in this reach of the Colorado River are reflected in the CDSS model through inclusion in aggregated diversion structures (51_ADC001, 51_ADC007, 51_ADC008, 51_ADC011, and 50_ADC012). The CDSS HydroBase database was reviewed and it does not appear there are any other large capacity ditches in this reach. Information on how these ditches are reflected in the CDSS model is available in the *Colorado Decision Support System Colorado River Basin Water Resources Planning Model, Final Report and Appendices (Colorado Water Conservation Board, Colorado Division of Water Resources, July 2000).* BBA provided a memorandum dated February 25, 2005, summarizing their review of the WGFP Modeling Report (December 2003). As part of that effort, BBA provided a list of Meadow Pumpers' water rights, which are treated as senior to the C-BT Project water rights per SD 80. The CDSS model baseline scenario (current conditions with no WGFP) was reviewed to determine how the CDSS model portrays the ability of these water rights to divert water in relation to the C-BT Project. The actual priorities of the Meadow Pumpers' rights are maintained in the CDSS model so these rights do not divert out-of-priority. If these rights were made senior to C-BT, they would be modeled incorrectly in relation to other rights with priorities junior to C-BT rights, but senior to these rights. Discrepancies caused by this representation in the model are minor. Therefore, the representation of the Meadow Pumpers' rights, whether junior or senior to C-BT Project water rights does not affect or change the evaluation of environmental consequences. We agree with BBA that water rights associated with the Meadow Pumpers that are senior to October 15, 1977 are entitled to Green Mountain Reservoir HUP protection and are entitled to divert at times the Shoshone call is on. Rights that are upstream of the confluence with the Blue River would need to divert water by exchange with Green Mountain HUP protection.

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		205. See responses Comment Nos. 220 to 223 for additional information on ground water. 206. For those Windy Gap Participants that are also in the Northern Integrated Supply Project (NISP) (Central Weld County Water District, Erie, Evans, Fort Lupton, and Lafayette), the estimated yield from NISP was added to the discussion in *Section 1.7 Participant Water Supply and Demand* of the FEIS. Because the projected water needs for these entities exceed the potential yield from WGFP or NISP, if one or both projects are not completed, available water supplies would not meet future needs and other sources of water would need to be developed. 207. A detailed description of Windy Gap demands is provided in Section 2.1.10 in the WGFP Modeling Report Addendum (July 2006) and in Section 7.9 of the Water Resources Technical Report. Windy Gap demands were not designed to meet and exceed supplies. The Participants' demands and projected water needs (shortages in firm yield) are described in Sections 1.7 and 1.8 of the DEIS and FEIS. Section 3.5.3.7 of the FEIS was revised to explain why demands would rise for all alternatives compared to existing conditions.

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208	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 13 Page 61 • The last paragraph states that "There would be some days under all of the alternatives at all three locations when flows would increase, which is due to changes in the timing of spills from Lake Granby." Table 14 also shows percentages of flow increases below Windy Gap. This information is inaccurate and misleading, as the report also discusses in Section 7.4.1.1 (page84) that the model overestimates probable actual WGFP pumping that would later spill due to a lack of a forecasting tool in the model. This section should be modified to specifically reflect the overestimation of flow increases due to the model.	208. It is not inaccurate and is misleading that there could be flow increases below Granby Reservoir and Windy Gap due to differences in spills under existing conditions compared to the action alternatives. As shown in Table 14 of the Water Resource Tech Report, flows below Windy Gap from May through August would increase infrequently, approximately 1.3% of the time. This is not due to the lack of a forecasting tool in the model. Flows would increase below Granby Reservoir and Windy Gap under the Proposed Action primarily due to small increases in C-BT spills. As shown in Table 17 of the Water Resource Tech Report, C-BT spills would increase slightly under the Proposed Action. Differences in Granby Reservoir C-BT contents and spills among alternatives occur due to variations in Windy Gap operations (including the amount of Windy Gap shrink paid to the C-BT Project), instantaneous deliveries and prepositioning, as well as differences in the allocation of C-BT water in Granby Reservoir, Carter Lake, and Horsetooth Reservoir due to prepositioning C-BT water in Chimney Hollow Reservoir. For example, in a wet year like 1984, model results show that Windy Gap would not pump under existing conditions; however, under the Proposed Action, approximately 37,000 AF would be pumped. The additional Windy Gap diversion shrink paid to the C-BT Project would be spilled, creating an increase in flows below Granby Reservoir. This increase in flows would occur below Windy Gap in months that Windy Gap does not pump (e.g., when Chimney Hollow is full).
209	• This section also presents information about how often the streamflow doesn't change. While this is useful information, it is much more significant and appropriate to also have a thorough discussion of the flow changes during the days of pumping.	209. Sections 3.5.2.5 and 3.5.2.6 in the FEIS were revised to provide more information on Windy Gap spills and the frequency and magnitude of flow changes below Windy Gap.
210	• The DEIS must include a detailed presentation of information regarding any increases in duration of minimum flow conditions at various location on the Colorado River. The Windy Gap project is subject to meeting minimum flow conditions at certain locations. The DEIS needs to report the frequency and duration of flow conditions at or below these minimums under the Existing Conditions and each of the alternatives.	210. Table 3-13 in the FEIS describes the number of days that flows below the Windy Gap diversion would be less than 100 cfs over the study period as a result of Windy Gap pumping. The table describes the frequency that flows are at or near the Windy Gap minimum flows as a result of the alternatives.
211	• Table 14, on page 63 The title states "Colorado River at Hot Sulphur Springs and Kremmling," but does not explain if the percent of flow changes are identical at both locations.	211. Table 14 from the Water Resource Tech Report was included in the DEIS as Tables 3-6 and 3-8. Table 3-8 in the DEIS was labeled Colorado River below Windy Gap (Hot Sulphur Springs to Kremmling) – daily flow changes compared to existing conditions from May through August. The percent flow changes due to Windy Gap compared to existing conditions are the same at all locations in that reach.
212	Page 65, 3rd paragraph from bottom This paragraph states "Therefore, under Existing Conditions and the No Action alternative, Windy Gap diversions would be limited or curtailed in most wet years." This statement is not consistent with Tables 18 and 20. These tables show Windy Gap Adams Tunnel diversions under Existing Conditions being fairly similar in average (11,500 af) and wet (12,081 af) years. However, under the No Action alternative, Windy Gap deliveries jump from 10,910 af in average years to 29,879 af in wet years. This represents a 274% increase, which is not considered "limited."	212. The intent of the statement "Windy Gap diversions would be limited or curtailed in most wet years" was that Windy Gap diversions would be limited to
213	Page 69 This page discusses the assessment of evaporation among Windy Gap and CBT water in the reservoirs. It states that pre-positioning CBT in Chimney Hollow would be subject to a different evaporation rate than if it was stored in Granby, which is true. Table 16 shows that evaporation at Lake Granby would be reduced (418 af/yr average) between the Existing Condition and the Proposed Action, which makes sense since Granby elevation and content are both projected to be lower. However, the table also shows evaporation in Chimney Hollow increasing by only 356 af/yr. This cannot be accurate, as the gross evaporation rate at Chimney Hollow is much greater than at Granby. This section should summarize the projected evaporation of CBT and Windy Gap water separately at each facility under each alternative. Also note that the word "Hollow" is missing in the middle paragraph (which states "Long term storage of C-BT water in Chimney [sic] Reservoir…")	
214	Table 17, page 70 This table is incorrect, as it shows that CBT spills increase with the Proposed Action, compared to the Existing Conditions. With pre-positioning, CBT spills should decrease, so this table inaccurately represents the actual conditions if the preferred alternative is adopted. This is likely due to the lack of adequate forecasting in the model used to evaluate effects.	
215	Table 18: This table is flawed, with the following examples: • Based on the information provided, the total flow available above the Windy Gap diversion should be equal to the sum of the three flow nodes above it; at Colo R below Granby + Willow Creek at confluence + Fraser River at the confluence. However, under the Existing Conditions column, the sum of these flows (168,700 af) is approximately 19,200 af less than the modeled flow above Windy Gap. There may be minor inflows and some irrigation diversions between these gages, but not as much as 19,200 af/year. Similar inaccuracies are shown for the other alternatives. We also note that a similar table in the DEIS Report (Table 3-2) fails to show any data for the Fraser River, which further adds to confusion. www.bbawater.com Bishop-Brogden Associates, Inc.	

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		the period prior to Granby Reservoir filling, which is why "or curtailed" was added as synonymous with limited. Windy Gap deliveries increase dramatically in wet years due primarily to the delivery of Longmont's Windy Gap water to Ralph Price Reservoir and instantaneous Windy Gap deliveries prior to Granby Reservoir spilling since the demand for Windy Gap water is higher under No Action. This statement was revised in the FEIS in Section 3.5.2.3 under the subsection Colorado River below Granby Reservoir. 213. Table 16 in the Water Resource Report presents modeled evaporative losses attributed to the C-BT Project for each alternative in each major C-BT facility and Chimney Hollow Reservoir. Evaporative losses in all C-BT reservoirs are charged to the C-BT Project regardless of the amount of Windy Gap contents in that facility because the diversion shrink paid by the Windy Gap Project is intended to offset the losses incurred by the C-BT Project due to the carriage and delivery of Windy Gap water. The total average annual net evaporative loss at Chimney Hollow Reservoir was estimated to be 1,510 AF/yr under the Proposed Action, of which 356 AF/yr would be attributed to C-BT and 1,154 AF would be attributed to Windy Gap. Estimated C-BT evaporative losses attributed to C-BT water stored in Chimney Hollow are accurate for the following reasons. Average end-of-month C-BT contents in Chimney Hollow Reservoir would be about 24,400 AF or approximately 27% of the total reservoir volume. The average annual evaporative loss attributed to C-BT water in Chimney Hollow Reservoir would be approximately 24% of the total average annual evaporative loss. That is slightly less than the percentage of C-BT water in Chimney Hollow on an average monthly basis; however, C-BT contents would tend to be higher in Chimney Hollow during the winter months when evaporative losses are lower compared to summer months when Windy Gap diversions occur and are exchanged into Chimney Hollow Reservoir. This explanation was added to Section 3.5.2.3 of the FEIS under the subsection Loss of C-BT Water from Reservoir Evaporation. An additional table summarizing Windy Gap evaporative losses in each facility is not needed. 214. The Table correctly estimates that C-BT spills increase with the Proposed Action compared to existing conditions. Differences in C-BT contents in Granby Reservoir occur due to differences in the amount of Windy Gap diversions and carryover shrink paid to the C-BT Project, instantaneous Windy Gap deliveries, and differences in the allocation of C-BT water in Granby Reservoir, Carter Lake, and Horsetooth Reservoir due to prepositioning C-BT water in Chimney Hollow Reservoir. For example, Windy Gap diversions increase under the Proposed Action; therefore, more diversion shrink is paid to the C-BT Project. This increases C-BT contents in Granby Reservoir, which may spill before losses are incurred by the C-BT Project due to the carriage and delivery of Windy Gap water.

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216	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 14 • Under the Existing Conditions column, the Windy Gap diversions are shown to be 36,532 af/yr, yet the Windy Gap Adams Tunnel deliveries are only 11,500 af/year. This leaves a difference of 25,032 af/yr, which is not explained in the DEIS.	See also response to Comment No. 208. Also, prepositioning of C-BT water in Chimney Hollow occupies space in the Adams Tunnel that might otherwise have been used to fill Carter Lake and Horsetooth Reservoir. This could result in more C-BT water positioned on the West Slope as opposed to East Slope under the Proposed Action at times C-BT contents in Granby Reservoir and Chimney Hollow reach 539,758 AF, resulting in increased C-BT spills compared to existing conditions. Overall, the increase in C-BT spills under the Proposed Action is minor and only 2% greater than under existing conditions. The lack of a forecasting function in the WGFP model has a minimal effect on C-BT spills. 215. See response to Comment No. 178 regarding the gains below Granby Reservoir, Willow Creek at the confluence, Fraser River at the confluence, and above Windy Gap. Data for the Fraser River were added to Tables 3-6, 3-7, and 3-8 in the FEIS. 216. The difference between Windy Gap diversions and Windy Gap Adams Tunnel deliveries equals Windy Gap deliveries to Middle Park, diversion shrink, carryover shrink, and spills from Granby Reservoir. More information on Windy Gap diversions, spills, and the net depletion to the Colorado River was added to Section 3.5.2.5 in the FEIS under the subsection Windy Gap Diversions, and in Section 3.5.2.6 under the subsection Colorado River to explain the differences between Windy Gap diversions and deliveries through Adams Tunnel.
217	• These tables (18, 19 and 20) should also show lines for Windy Gap water into and out of storage in Granby and Chimney Hollow, water exchanged between them, as well as actual deliveries through the Adams Tunnel.	
218	Table 20 • This table is flawed for the same reasons as Table 18 and 19	
219	• The report states that under most wet years, Windy Gap will not be able to divert under Existing Conditions due to capacity in the CBT system. This table shows average Windy Gap Adams Tunnel deliveries of 12,081 af/yr and average Windy Gap diversions of 38,512 af/yr (under Existing Conditions). However, we note that 4 of the 5 wet years modeled were actually years that Granby spilled (Table 2), and Windy Gap yield should be nearly zero. If the model used historic hydrology (and historic spills), the average diversions and tunnel deliveries under Wet years should be nearly zero. This is important because the data presented in the DEIS under-estimates the impacts of all action alternatives.	
220	7.2 • This section of the DEIS presents conclusions regarding groundwater conditions that are not supported by any reported evidence or analysis. For the alluvial wells in the vicinity of Lake Granby, the DEIS does not present any water level mapping or inventory of wells logs for this area indicating depth and water levels compared to the reservoir. In localized areas, along the shoreline particularly near the dam, the groundwater gradient may be from the reservoir to the alluvium, in which case changes in reservoir storage may have a significant effect on the water levels in local residential wells. This may also induce a flow of lower quality water from the reservoir into relatively sterile residential wells.	
221	• Changes in riparian alluvium of up to 6 inches may have an adverse effect on alluvial wells depending upon the duration of the changes in the groundwater elevations. The discussion in this section is also unsupported by any data or technical analysis.	
222	• Changes in river stage can result in a change in alluvial bank-storage, which will cause lagged changes in streamflow. While the effects of this may be minimal over most stream reaches due to the limited alluvium, the DEIS needs to address this.	
223	7.4.1.2: • This section needs to show much more detailed information about the reductions in streamflow during projected days of pumping, not just percent of time when flows won't change. It should present the information as both numerical changes in modeled flows compared to existing flows and as a percentage change of flow during times of pumping, under wet, average and dry conditions. It should clearly show the range of maximum daily flow changes by month at various locations (from X cfs to Y cfs). It should also discuss the frequency and duration of flows at or near the Windy Gap minimum flows as a result of the project alternatives.	
224	• Similarly with the changes in stream depth (top of page 87) due to the reductions in flow, the report should state that the depth is reduced from a depth of X inches to a depth of Y at various locations, and not just the percentage change.	
225	• The report should address these changes in comparison to both existing flows and to historic (pre-project) flow regimes to the extent this information can be estimated. www.bbawater.com Bishop-Brogden Associates, Inc.	217. Tables 18 through 20 were included in the DEIS as Tables 3-2, 3-3, and 3-4. These tables were revised in the FEIS (Tables 3-6, 3-7, and 3-8) to include Windy Gap spills to provide more information on Windy Gap water out of Granby Reservoir. Windy Gap water into Granby Reservoir equals the Windy Gap diversion, which is already included in those tables. More information on Windy Gap diversions, spills, and the net depletion to the Colorado River was added to Section 3.5.2.5 in the FEIS under the subsection Windy Gap Diversions, and in Section 3.5.2.6 under the subsection Colorado River. Historical or actual deliveries through Adams Tunnel were not added to tables because the evaluation of hydrologic effects was based on a comparison of modeled existing conditions. Historical Adams Tunnel deliveries are summarized in Table 5 of the Water Resources Technical Report. The purpose of Tables 18 through 20 was to present information useful in analyzing flow changes at key locations on the West and East slopes; therefore, information on Windy Gap water into and out of Chimney Hollow Reservoir was not added to the table. End-of-month C-BT and Windy Gap contents in Chimney Hollow are displayed in Figure 37, and similar information for Granby Reservoir is displayed in Figures 27, 29,

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		37, and 44 for existing conditions, No Action, the Proposed Action, and Alternative 3, respectively. These figures display the net effects of Windy Gap and C-BT inflows and releases from these reservoirs. 218. See response to Comment Nos. 215 through 217. 219. See response to Comment No. 183 regarding Windy Gap diversions under existing conditions in wet years when Granby Reservoir fills. Windy Gap may divert early during the runoff period even in wet years depending on many factors, including snowpack; Granby Reservoir, C-BT, and Windy Gap contents; Carter Lake and Horsetooth Reservoir contents; precipitation; Big Thompson River basin forecasts; and orders for Windy Gap water. Windy Gap pumped 26,369 AF from April 28 through June 18, yet 2009 was a wet year in the Upper Colorado River basin above Windy Gap. In 1995 (a wet year), Windy Gap pumped 14,061 AF, some of which was spilled later that year. Data for 1995 and 2009 show that Windy Gap diversions and deliveries should not be nearly zero in wet years. Windy Gap may deliver water in a wet year even though Granby Reservoir spills because the deliveries occur prior to the spill. The data presented in Tables 18 through 20 are based on a water year from October 1 through September 30; therefore, the average annual Windy Gap diversions and Windy Gap deliveries through the Adams Tunnel during a wet year reflect what would occur prior to a Granby Reservoir spill. Section 3.5.2.3 in the FEIS was revised to explain that Windy Gap diversion in wet years would be curtailed after Granby Reservoir fills. Windy Gap diversions in wet years prior to Granby Reservoir filling depend on many factors including snowpack, Granby Reservoir contents (C-BT and Windy Gap), precipitation, Big Thompson River basin forecasts, and orders for Windy Gap water. 220. Granby Reservoir currently experiences large swings in reservoir stage due to existing water diversions and seasonal fluctuations. If alluvial water supply wells exist near the dam, they have been operating under these conditions without any apparent negative impacts. Assuming that the reservoir is the source of water to these alluvial wells, ground water quality in the alluvium is likely very similar in quality to that of the reservoir. For that reason, the WGFP would not "induce a flow of lower quality water from the reservoir into relatively sterile residential wells." Also see response to Comment No. 113.

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		221. Water level fluctuations of 6 inches or more are common in alluvial ground water systems due to natural seasonal climatic variations, ground water pumping, irrigation return flows, and stream diversions. Alluvial ground water users currently divert water under fluctuating water level conditions. A decrease in water levels of 6 inches would not likely be noticeable to a user pumping from the alluvium, assuming the average saturated thickness is adequate to produce water by pumping at any specific location. 222. The predicted stage changes of up to 6 inches along the Colorado River would have immeasurable affects on bank storage and streamflow lags within the natural variability of these parameters. The river system is dynamic in that stage, is constantly increasing or decreasing, and the effects of a few inches of change due to Windy Gap diversions would not be identifiable within the overall background changes. Also see response to Comment No. 115. 223. The EIS presents information on reductions in streamflow when Windy Gap pumps. Table A-10 in Appendix A of the FEIS presents the average monthly numerical changes in modeled flows and percentage change in flow compared to existing conditions for average, wet, and dry conditions. The range of maximum daily flow decreases by month (from X cfs to Y cfs) below Windy Gap was added to Section 3.5.2.6 in the FEIS under the subsection Colorado River below the Windy Gap Diversion. Section 3.5.2.6 in the FEIS was revised to provide more detail on the frequency and magnitude of flow decreases for the Colorado River below the Windy Gap diversion. Table 3-13 in the FEIS to describe the number of days flows below the Windy Gap diversion would be less than 100 cfs over the study period as a result of Windy Gap pumping. 224. Information on changes in stream depth due to reductions in flow are presented in Table E-2 in Appendix E to the Water Resources Technical Report. Table E-2 is referenced in the section where changes in stage are reported; therefore, it is not necessary to state that the stage is reduced from a depth of X inches to a depth of Y inches. The reader can refer to Table E-2 for that information. 225. See response to Grand County Comment No. 1.

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226	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 15 • This section, and all other action alternatives, need to have a table similar to Table 21 showing the monthly average and maximum streamflow before and after at various locations on the East Slope. The evaluation for West Slope streams should equal or exceed the evaluation of the source area streams.	226. See response to Comment No. 228.
227	Figures 27 and 29 (page 88) The report needs to show both the Existing Conditions and the current option on the same graph to be able to compare the changes in storage.	227. The data in Figures 27 and 29 were not shown on the same graph. A figure combining the data in Figures 27 and 29 was not included because the figure is difficult to read with that much data presented. The reader can refer to Table F-7 in the Appendix to the Water Resources Technical Report to compare average monthly changes in total Granby Reservoir contents for average, wet, and dry years. Figure 36, which shows Granby Reservoir estimated monthly surface elevation for the Proposed Action compared to existing conditions, is similar to the graph requested in the comment. In addition, Figure 35 shows Granby Reservoir estimated average year surface elevation for all alternatives compared to existing conditions.
228	Table 21 This is a very helpful table, however, it is only presented for East Slope streams. This is the exact type of information that would be helpful to evaluation potential impacts to West Slope streams.	228. Tables similar to Table 21, which show flow changes based on a comparison with historical gage data, were not included for West Slope streams because it is appropriate to assess effects due to the EIS alternatives based on a comparison to modeled existing conditions as opposed to historical conditions. The hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations, as discussed in Section 7.1 of the Water Resources Technical Report. Table 21 was included for East Slope streams because those streams were not included in the WGFP model. Therefore, the best available information for assessing impacts to East Slope streams was historical gage data because modeled existing conditions streamflows were not available.
229	7.4.2.1: • This section is misleading regarding changes in Granby elevations. The DEIS minimizes the changes in elevations by stating that the 18' projected are much less than the existing 90' fluctuations. However, such a change represents a 20% increase over current conditions.	229. Section 3.6.2.3 of the FEIS was revised to clarify the discussion on changes in Granby Reservoir elevations. To address possible large drops in lake level during a series of dry years, mitigation was added to the Preferred Alternative that would modify prepositioning operations by curtailing deliveries of C-BT water to Chimney Hollow Reservoir when Granby is forecasted to drop below elevation 8,250. Thus, C-BT deliveries to Chimney Hollow would generally be curtailed when water storage in Granby Reservoir reaches about 340,000 AF. This measure would reduce water level fluctuations, and Granby Reservoir would remain higher in dry years than predicted in the DEIS, as described in Section 3.5.4 in the FEIS.
230	• Regarding the numerous domestic wells that supply water to the homes surrounding Lake Granby, this section states "is probable that much of the ground water adjacent to the lake is from topographically higher areas surrounding the lake rather than from Lake Granby." As described above, the DEIS does not present any data or analysis to support this assertion.	230. See response to Comment No. 113. Additional information was added to the ground water discussion in the FEIS.
231	7.4.3.1 • This is one of the sections that appears to present conclusions regarding changes in daily streamflow, that are likely a result of the disaggregation methodology. The results in this section are erroneous, as the methodology to generate the daily flows is flawed. A daily model would produce the best results for estimating daily flow data. At a minimum, the DEIS should use varying disaggregation factors for wet, average and dry years at the various locations (instead of the long-term average factors). See our overall concerns above regarding the use of daily disaggregation factors to evaluate effects under the DEIS.	231. See response to Comment No. 182 regarding the methodology used to generate daily flows.
232	• As with other sections of this report, this section needs to present the hard-number changes in flow, averages and maximums, for both the existing and alternative conditions. For example, the text indicates that the 2-year peak flow is 923 cfs at HSS under Existing Conditions, but does not report what the projected flow will be under No Action. Rather it deflects the information by stating that the changes will only reduce the exceedance of this flow rate "less than 1 percent." Further, a change from 3.3% exceedance to 3% exceedance is a 10% change overall – not a less than 1% reduction.	
233	• This section should also present information about the changes to the 2-year peak flow from historic conditions, as well as Existing conditions.	
234	• Similarly with the range of channel maintenance flows (bottom page 96), the DEIS needs to present the total number of years that such events occurred during the 47-year period. This section should also compare this information to historic hydrology.	
235	7.5.1.2 (page 104) • As before, this section may be misleading due to the lack of "forecasting" in the model, and the resulting increase in WGFP pumping and subsequent spills from Lake Granby, that would probably not occur in reality. This section should also present information regarding the change in frequency of Granby spills, as well as the average and maximum change in spill duration. For example, if you were to summarize the information on Table D-4, it appears that Lake Granby www.bbawater.com Bishop-Brogden Associates, Inc.	

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	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 16	232. See Table 3-32 in the FEIS for a quantification of the estimated changes in channel maintenance flows for the alternatives. The discussion on percent changes in the 2-year flow shown in the flow duration curve was revised in the FEIS.
235	spills would drop from 21 years (out of 47) and roughly 1,200 total days of spill down (57 days/year during spill years) to 14 years and 880 days of spill (a reduction of 2 weeks/year during spill years) under the preferred action. Further, under Table D-11, it concludes that there will a 100% reduction of spills in the months of July and August. However, the DEIS needs a comprehensive explanation of the changes to Granby spills, rather than the bits and pieces of tangential information.	233. Consistent with CEQ and Reclamation guidance, the EIS analyzed the effects of the project alternatives compared to existing conditions and No Action, not to historic conditions. The cumulative effects analysis looks at how past, present, and reasonably foreseeable future actions affect resources.
236	• This section needs to present much more actual projected daily flow changes on an average and maximum basis, in addition to the monthly and annual averages. Similarly, what are the projected maximum daily changes in river stage (depth), in addition to the monthly averages.	234. Information on changes in the percent of years and duration of various channel maintenance flows occur during the model period is found in Table 3-32 of the FEIS.
237	• Figures 31 through 34 should also present historic hydrology.	
	7.5.1.3	
238	• The current Windy Gap water rights do not allow for storage in Chimney Hollow. The participants will need to change their water rights in Water Court to allow for such storage. The fact that "There are no decreed storage limits in Chimney Hollow Reservoir" and the discussion on Granby/Chimney Hollow operations (page 110) indicate that such a change of operations is contemplated. Therefore, terms and conditions in the water rights decree may be necessary to prevent injury to other water rights.	235. See response to Comment No. 183 regarding the lack of a forecasting function. Section 3.5.2.5 in the FEIS was revised to provide more information on the frequency and duration of Granby Reservoir spills. 236. Section 3.5.2.6 of the FEIS was revised to include more information on maximum daily flow and river stage changes.
239	• The discussion regarding changes in Lake Granby should also show, similar to Figures 35 and 36, the projected elevation changes during wet and dry years. Figure 37 should also show the same information for the Existing Condition to compare the proposed changes.	237. See response to Comment No. 177 Historical average daily flows at the Hot Sulphur Springs USGS Gage and Willow Creek USGS Gage are presented in Figures 3-4 and 3-5 of the FEIS, respectively. The reader can refer to these figures for a presentation of historic hydrology.
240	Sections 7.5, 7.6 and 7.7 Many of the comments from Section 7.4 (No Action) also apply to these sections. These sections needs to present much more detailed information regarding specific changes in flow and stage, duration of changes, etc., to accurately identify the impacts. Tables such as Table 24 for the East Slope streams should also be presented here.	
241	Section 7.9 As described above, the original Windy Gap Project anticipated a firm delivery of 3,000 AF to Middle Park WCD. Any changes to the project as a result of the WGFP should fulfill the original obligation of the project, and 'firm up' Middle Park's 3,000 af/year prior to any additional deliveries to the East Slope.	238. See response to Comment No. 197.
242	Section 8.2.1, page 144 This section is highly misleading regarding Urban Growth in Grand and Summit Counties. The information presented here is total projected water demands, where only a small percentage of these demands will be consumptively used. The return flows from these uses will return to the river system immediately and over the next several months. This results in an inaccurate comparison to Windy Gap or Moffat diversions – which are 100% depletive to the Colorado River system.	239. Wet and dry projected elevation and surface area changes are presented in Tables F-7 and F-8 of the Water Resource Tech Report. That information is sufficient to present changes in wet and dry years; therefore, additional figures were not included. The same information presented in Figure 37 (C-BT and Windy Gap contents in Granby Reservoir for the Proposed Action) was presented in Figure 27 for existing conditions. Those figures can be compared to evaluate proposed changes. A figure combining the data in Figures 27 and 37 was not included because it is difficult to read with that much data presented.
243	Section 8.3 See discussion above regarding the Shoshone call reduction in the Future Conditions model. This is a long-term agreement that very likely will be implemented in the future, and needs to be included in the modeling and comparison of alternatives.	
	Section 8.4.2:	
244	• The section indicates that "downstream demands would increase in the future" (page 148). The DEIS provides no information or basis to support this assertion. We believe that it would be accurate and appropriate to state that the projected additional depletions of water upstream of these demands (from WGFP, Moffat, etc.) will reduce the water supplies to these demands, resulting in an increase in administrative calls in the future.	240. Information presented in Sections 7.5, 7.6, and 7.7 is sufficiently detailed to identify impacts. Information on changes in flow, stage, and reservoir contents is included in the Appendices to the Water Resources Technical Report. Information on the frequency and magnitude of daily flow changes along the Colorado River near Granby Reservoir, Hot Sulphur Springs, Kremmling, and Willow Creek is presented in Table 14 and Appendix B in the Water Resource Tech Report (flow duration curves). Appendix D includes information on average, wet, and dry
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		monthly changes in streamflows at key locations, Windy Gap diversions, and Granby Reservoir spills. Appendix E includes information on average, wet, and dry monthly changes in stream stage at key locations. Appendix F includes information on average, wet, and dry changes in reservoir contents, elevation, and surface area. The information presented in the appendices is described and explained in Sections 7.5 through 7.8. Those sections also include additional tables and figures showing average daily flow changes along the Colorado River and Willow Creek, average daily changes in reservoir surface elevation, and monthly surface elevations for the entire period of record for Granby Reservoir, Carter Lake, Horsetooth Reservoir, and Chimney Hollow Reservoir. Tables such as Table 24 were not included for West Slope streams because it is appropriate to assess effects due to the EIS alternatives based on a comparison against modeled existing conditions as opposed to historical conditions since the hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations as discussed in Section 7.1 of the Water Resources Technical Report. Table 24 was included for East Slope streams because those streams were not included in the WGFP model; therefore, the best available information for assessing impacts to East Slope streams was historical gage data. 241. See response to comment No. 185. 242. Section 2.8.2.2 in the FEIS was revised to include a discussion of depletions to the Colorado River system associated with urban growth in Grand and Summit counties. 243. See response to Comment No. 184. An explanation regarding why the Shoshone call relaxation was not included in the model was added to Section 3.5.3.2 in the FEIS under the subsection Colorado River. 244. The DEIS provides information supporting the comment that downstream demands would increase in the future. Water-based reasonably foreseeable actions with increased demands and depletions include the Moffat Project, population growth in Grand and Summit counties, and increases in Wolford Mountain Reservoir contract demands, which are described in Section 2.8.2.1 of the DEIS. Section 3.5.3.4 of the FEIS was revised under the subsection Colorado River below the Windy Gap Diversion to include more discussion of the increase in administrative calls in the future. Future administrative calls also are described in Section 3.5.3.3 of the FEIS.

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245	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 17 • Based on the information in the DEIS, it is highly unlikely that the flows at HSS will increase 25% of the time in the future. The cumulative effects section discusses the projected additional depletions upstream of this gage from the WGFP, Moffat and some minor increases in Grand County consumptive uses. This conclusion may be significantly inaccurate, and inappropriately presents the results of the project. Alternatively, this is solely a result of the lack of forecasting in the model which shows an increase in flows due to Windy Gap water that is pumped and then later spilled at Lake Granby – which is not realistic.	245. The estimated increases in flows at Hot Sulphur Springs are not the result of the lack of forecasting in the model. Modeled Windy Gap diversions and consequently spills may be overstated in wet years primarily under existing conditions because forecasting is not incorporated in the WGFP model. As a result, flows below Granby Reservoir may see less flow reduction (not flow increase) than predicted in the model because of additional Windy Gap spills in June through August under existing conditions and No Action. Flow increases at Hot Sulphur Springs compared to existing conditions are primarily due to increases in the flow that Windy Gap must bypass to satisfy downstream senior rights. Flows are predicted to increase below Windy Gap approximately 25 percent of the time; however, approximately 10 percent of the time, the increase in flow is less than 10 cfs. Small flow increases of less than 5 cfs at Hot Sulphur Springs are due to additional bypasses for increased indoor and outdoor depletions associated with future municipal growth along the Colorado River. Larger increases in flow below Windy Gap would generally be caused by an increase in administrative calls in the future.
246	Section 8.4.2.2 The last full paragraph (page 151) states that the cessation of irrigation under the Big Lake ditch by Denver Water "would result in approximately 8,800 AF/year less depletion and a corresponding increase in flows on average in the Williams Fork River…" It would be helpful to present an estimate of the NET increase to the Colorado River from the reduction in consumptive uses associated with the cessation of irrigation under this ditch. This section implies that there is an increase in flows of 8,800 af/year to the river system. While this may be accurate for flows in the Williams Fork, it is not an accurate representation of flow changes to the Colorado River system. The cessation of irrigation under this ditch will result in an increase in yield to the Denver Water system from both a reduction of bypasses at the upstream Jones Pass collection system, as well as increased water supplies for storage at Williams Fork Reservoir. The additional water stored in Williams Fork Reservoir will be used to offset additional depletions at either the Moffat Collection System or Dillon Reservoir. Thus, there is no net gain to the Colorado River downstream of the Blue River and an actual loss in streamflow to the Fraser and Blue Rivers. This section of the DEIS needs to present a detailed summary of the changes to the Denver Water system and the resultant additional depletions to the Colorado River. This is another example of why the EIS evaluation for both projects needs to be combined and evaluated using a daily model.	246. Section 3.5.3.2 of the FEIS was edited to include a discussion of the net change to the Colorado River due to the expiration of the Big Lake Ditch contract .
247	Section 8.4.2.6 • The gains represented in Table 29 by the Shoshone call relaxation agreement are an excellent example of why the model used to evaluate impacts to the West Slope needs to a) be extended through at least 2005, and b) include the implementation of this agreement. Further, as the Shoshone relaxation benefits both the WGFP and the Moffat Expansion Project, both should be evaluated using the same model.	247. See responses to Comment Nos. 184 and 180 regarding inclusion of the Shoshone call relaxation in the model and extension of the model study period. See responses to Comment Nos. 179 and 187 regarding use of the same model for the cumulative effect analysis for the WGFP and Moffat Project EISs and combining the two EISs.
248	• This section does not explain why the model did not include this agreement in the Future Conditions. Both of the above factors may understate the projected impacts to the West Slope.	248. See response to Comment No. 184.
249	• Table 29 indicates that Windy Gap realized additional yields of 7,850 af from the Shoshone agreement in 2003. This would mean that Windy Gap diverted approximately 56,350 af under its own water rights. This total volume is approximately 2.5 times the previous maximum diversions of 21,900 af/year (1992), which would appear to be highly unlikely given the drought conditions that were occurring in 2003. This section should provide additional information regarding how the values shown in Table 29 were determined. Further, the DEIS should state what the increases were to CBT diversions, which either occurred as a result of diversions under the CBT direct-flow right or from additional storage at Granby that was not replaced by the CBT pool in Green Mountain Reservoir.	249. The data presented in Table 29 regarding the gains from the Shoshone call relaxation were quantified by Denver Water and reviewed and agreed to by Reclamation, River District, and other West and East Slope entities. Gains from the Shoshone call relaxation were approved for use in calculation of 10% of the net water stored or diverted by Denver Water by virtue of the call relaxation, which was provided to various West Slope entities. The calculation of gains for each project/water rights shown in Table 29 relied on Shoshone call data, diversion data at each project, and gaged flow at the USGS gage at Dotsero to determine how much of the diversion at these projects would have been called out had the call not been relaxed. Potential benefits to the C-BT Project are included in the gains shown for Green Mountain Reservoir. Section 3.5.3.2 of the FEIS was revised to clarify the gains to Green Mountain Reservoir to include benefits to the C-BT Project.
250	• The Summary on page 158 indicates that, based on historic information and the forecasting criteria, the Shoshone call reduction agreement may have been enacted in "1 out of every 6 to 7 years" during the modeling period. Given this frequency of occurrences, this foreseeable action should be included in the modeling for the WGFP.	
251	Tables 30 – 32: • Many of the same comments for Table 18-20 also apply to these tables www.bbawater.com Bishop-Brogden Associates, Inc.	

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252	Barb Green, Dave Taussig, Peter Fleming December 23, 2008 Page 18 • These tables no longer show "Adams Tunnel Windy Gap Deliveries." The only information presented about Windy Gap operations is "Windy Gap Diversions," which also includes significant quantities of water that will subsequently spilled at Granby. This may significantly overstate the actual future Windy Gap operations.	250. See response to Comment No. 184. 251. See responses to Comment Nos. 215 through 219 regarding Tables 18 through 20. 252. Tables 30 through 32 were included in the DEIS as Tables 3-14, 3-15, and 3-16. These tables were revised in the FEIS (Tables 3-21, 3-22, and 3-23) to include information on Windy Gap spills, and Adams Tunnel C-BT and Windy Gap deliveries. See response to Comment No. 183 regarding overstating future Windy Gap operations.
253	• It would be very helpful to have two comparison columns, Existing Conditions and the modeled Future Conditions, to better understand what the action consequences are.	253. Hydrologic effects under cumulative effects were based on a comparison with existing conditions. It is not clear what is meant by "modeled Future Conditions" in the comment. A comparison against the No Action Alternative is not needed.
254	• These tables show an Existing Condition Windy Gap diversion of 36,532 af, and then compare all alternatives to this volume. In fact, the Existing Conditions should show a Windy Gap diversion of approximately 11,500 af/year. Because the EIS and Executive Summary also represent the "Difference" as a result of the WGFP, this is a highly inaccurate portrayal of the total project pumping and the effects of the alternatives.	254. See response to Comment Nos. 177 and 183.
255	• These tables should also show lines for Windy Gap water into, and out of, storage in Granby to really understand the operations.	255. The purpose of these tables was to present relevant information for understanding changes in streamflow along the Colorado River and other key locations. Tables 30 through 32 were included in the FEIS as Tables 3-21, 3-22, and 3-23. These tables were revised to include Windy Gap spills and Adams Tunnel Windy Gap deliveries to provide more information on Windy Gap water into and out of storage in Granby Reservoir.
256	• Table 32 shows that, during wet years, **the Cumulative Effects will deplete the flow of the Colorado River at Kremmling by an average of 157,000 AF.** This is critical piece of information regarding impacts to the West Slope, and needs to highlighted in the DEIS and Executive Summary documents.	256. Section 3.5.3.2 of the FEIS was revised under the subsection Colorado River to include more discussion of the anticipated flow changes along the Colorado River due to reasonably foreseeable actions. The Executive Summary provides a qualitative overview of environmental consequences for all affected resources. Flow changes at specific locations under average, wet, and dry conditions under cumulative effects are presented in Chapter 3 of the FEIS.
257	Section 8.7.1.3 This section should present much more detailed information regarding the effects to Rockwell/Mueller Reservoir in addition to Lake Granby. If the changes are similar to Section 7, then this should be stated in the section.	257. Section 3.5.2.6 of the DEIS under the subsection Granby Reservoir describes changes in water levels and contents under the action alternatives (see Figure 3-16), and Section 3.5.2.8 of the DEIS describes operations and effects at Rockwell/Mueller Reservoir (see Figure 3-25). Those sections cite similarities to Alternatives 3 and 4. Tables A-21, A-22, A-44, and A-45 in Appendix A of the DEIS also show average monthly changes in Granby Reservoir elevation and surface area for Alternative 5 under direct effects and cumulative effects.
258	**Recommended Terms for Mitigation and Approval** As you know, we assisted in the preparation of a set of criteria or conditions that should be incorporated into any approval of permits associated with the Windy Gap Firming Project. These conditions are summarized in Grand County's comment letter to the U.S. Army Corps of Engineers regarding the 404 Permit Application for the WGFP. Please let me know of any questions regarding this information. Very truly yours, BISHOP-BROGDEN ASSOCIATES, INC. Jeffrey A. Clark Principal - Hydrologist cc: Lurline Curran Eric Kuhn Stan Cazier BBA Job Nos: 0502.00 & 0808.00 www.bbawater.com Bishop-Brogden Associates, Inc.	258. Mitigation measures addressing impacts of the WGFP were incorporated in the FEIS, as summarized in Section 3.25. The Corps will address any conditions associated with the 404 Permit.

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259	**WATER QUALITY / QUANTITY COMMITTEE (QQ)** Post Office Box 2308 • Silverthorne, Colorado 80498 970-468-0295 • Fax 970-468-1208 • email: qqwater@Colorado.net **EXHIBIT C** To: Barbara Green, Mary Keyes From: Lane Wyatt Date: November 20, 2008 RE: WGFP DEIS Aquatic Resources Technical Report (July 2008) I reviewed the revised Aquatic Resources Technical Report for changes since the November 2007 PDEIS version. I took the February 11, 2008 Grand County comment letter on this report and changed it so that references to page numbers and tables are correct for the July 2008 version of the Technical Report. I also eliminated previous comments that did not seem useful. The new version of the comments on the July 2008 Aquatics Technical Report is below. **1.0 GENERAL COMMENTS.** In spite of Grand County's written comments to the Bureau of Reclamation, the analysis continues to rely on "average monthly" values for diversions and stream flows. This is a fatal flaw that calls into question all of the conclusions that might be drawn regarding environmental impacts that are caused by changes in hydrology. So that decision makers can understand the nature and extent of impacts to the aquatic environment, flows need to be depicted in terms that display the magnitude and duration of flow conditions. A similar concern with the use of monthly flow data to determine environmental effects was discussed in a report by the National Academy of Sciences, Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin, National Research Council, Hydrology, Ecology, and Fishes of the Klamath River Basin, (2007) ('National Academy of Science Report") www.nap.edu/catalog/12072.html. The committee concluded that "[a]lthough monthly flow values can be useful for general river-basin planning, they are not useful for ecological modeling for river habitats, because the monthly average masks important discharge values that may exist only for a few days or even less. In short, planners operate on a monthly basis, but fish live on a daily basis." (National Academy	259. See response to Grand County Comment No. 8.

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260	Science Report at 5)[1] The following comments elaborate on the problem caused by using monthly average flows as a predictive tool, and summarize the major deficiencies in the Aquatics Report. **1.1 Frequency of Conditions.** The Report focuses on the probability that a given amount of habitat will be available during any given wet or average water year. It does not look at how altering flows may impact the frequency with which conditions in the reach below Windy Gap (or for that matter below Lake Granby) will resemble those of a dry year as a result of diverting water to the East Slope.	260. The hydrology used for the habitat analysis was reported in the Hydrology Technical Report and the DEIS. The changes to flow frequency would not increase the frequency of dry year conditions. See response to Comment No. 261.
261	**1.2 Changes to the Hydrograph.** In those years when Windy Gap is pumping, we expect two changes to occur. First, the magnitude of peak flows below Windy Gap will be reduced. Second, because the WGFP will allow pumping to occur later into the year, the day at which the outflow from the reservoir equals the CWCB minimum flow requirement will be moved early in the year (*See* **Figure 1.2 A**, below). As a result, in many years, there will be an increase in the number of days that stream flows below Windy Gap will be reduced to the CWCB minimum. [1] The Bureau of Reclamation estimated monthly stream flows in its Natural Flow Study, which monthly flows were used as inputs into the instream flow studies for the Klamath River. (National Academy Science Report. at 3) The Committee concluded the Natural Flow Study was "seriously compromised" because among other things, the flows were calculated as monthly values, where the ecological applications of these calculated flows required daily values, and as a result, the output of the study would not have satisfied ultimate use requirements. (Id. at 3-4). It added that the use of monthly data was a "major shortcoming" which was "so severe that [it] should be addressed before decision makers can use the outputs of the study to establish precise flow regimes with confidence." (Id. at 5). 2	261. The comment states that the magnitude of peak flows below Windy Gap would be reduced when Windy Gap is pumping. The magnitude of peak flows below Windy Gap would be reduced in wet years, when Windy Gap would be able to divert additional water with the firming project; however, in years that Granby Reservoir does not fill and spill (most average years and all dry years), there would be no change in the magnitude of peak flows below Windy Gap. When there is sufficient storage space in Granby Reservoir for Windy Gap water, there would be no difference in Windy Gap diversions with or without the firming project. The only difference would be where Windy Gap water is stored. Under existing conditions, Windy Gap water would be stored in Granby Reservoir, whereas under the Proposed Action, Windy Gap water would be stored in Chimney Hollow Reservoir. In wet years, Windy Gap would be able to divert additional water with firming storage, which would reduce peak flows. As shown in Figure 3-13 in the DEIS, the peak flow would decrease from approximately 1,050 cfs under existing conditions to 850 cfs under the Proposed Action on average. In wet years, the peak flow would decrease from approximately 2,665 cfs under existing conditions to 2,470 cfs under the Proposed Action on average. Reductions in the magnitude of peak flows were addressed in the resource evaluations as follows. Peak flow effects on aquatic resources were evaluated by examining the magnitude and frequency of occurrence. In addition, the range of flows for the alternatives was evaluated for sediment transport capabilities compared to existing conditions.

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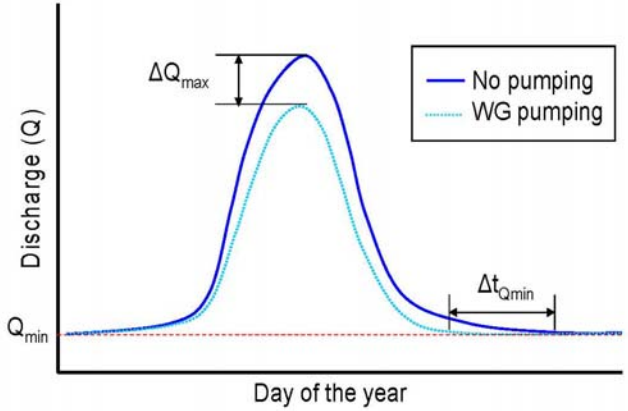
261	 ***Figure 1.2 A.*** Theoretical hydrographs showing discharge out of Windy Gap Reservoir when water is not being diverted (No pumping) and when water is being diverted (WG pumping) over the course of a calendar year. Pumping is expected to reduce peak discharge by ΔQ_{max}, which is less than or equal to the maximum pumping rate of the Windy Gap pumping station. In addition, pumping is expected to increase length of time discharge below Windy Gap is equal to the CWCB's minimum flow by Δt_{Qmin}. The Report ignores potential changes in the extent and frequency of low flow periods and the impacts of such changes on aquatic resources. The impacts of the WGFP cannot be assessed without this information. One way to begin to address this question would be to model how daily flows below Windy Gap Reservoir would have been decreased were any of the project alternatives in operation. This sort of analysis would have the additional benefit that it could then serve as the base for analyzing cumulative impacts by examining how, for example, the frequency and duration of low flows (not to mention peak flows) increase if the Denver Water Department's Moffat Firming Project comes online. Discharges in the Colorado River are highly variable, ranging from 23 cfs to approximately 4,300 cfs (Aquatics Report, p. 14). As with other rivers, the peak flows are critical for maintaining a healthy ecosystem. However, floods of different sizes with different return intervals often provide different services, in terms of maintaining ecosystem function. For example, very large floods may be responsible for building the floodplain through major bar deposits, whereas slightly smaller, bankfull floods may be responsible for the formation and maintenance of the active channel. More frequent moderately sized floods may, in turn, provide other sets of important services, including the scouring of sediments from spawning sites and flushing of these sediments downstream. Unfortunately, how reductions in the average magnitude of peak flows will affect their ability to maintain a healthy stream ecosystem is not addressed. 3	Under the Proposed Action, Windy Gap would divert additional water in years that Granby Reservoir fills. In some of those years, there would be an increase in the number of days that streamflows below Windy Gap would be reduced to the CWCB minimum, and the day at which the outflow from Windy Gap Reservoir equals the CWCB minimum flow requirement would be moved to earlier in the year. However, oftentimes in wet years, the flows above Windy Gap are significantly higher than 700 cfs. Under those circumstances, even if Windy Gap is diverting the full decreed amount of 600 cfs, flows below Windy Gap would still be considerably higher than the CWCB minimum. Therefore, additional diversions under the Proposed Action would not always increase the extent of low-flow periods. The WGFP Water Resource Technical Report addresses potential changes in the extent and frequency of low-flow periods caused by WGFP alternatives by evaluating how modeled daily flows below Windy Gap would decrease with any of the project alternatives in operation. Table 3-7 in the DEIS shows the number of days that flows below the Windy Gap diversion would be less than 100 cfs over the 47-year study period as a result of Windy Gap pumping. Under the Proposed Action, Windy Gap diversions would increase the number of days near the CWCB minimum by 10 days in 4 years in July, and 54 days in 4 years in August over the 47-year study period. There would be no change in the number of days that Windy Gap pumping causes flows to be near the CWCB minimum in May and June due to the WGFP alternatives. Section 3.5.2.6 of the FEIS was revised to indicate the number of years during the study period that Windy Gap diversions would increase the number of days near the CWCB minimum. The WGFP would not increase the incidence of dry-year conditions or prolong drought conditions. Windy Gap diversions during below-average years or in the year following a drought typically do not change with additional firming storage online. The Windy Gap Project is able to divert water in below-average years and wet years following dry years because there is typically storage space available in Granby Reservoir. In years when there is sufficient storage space in Granby Reservoir, there would be no difference in the amount of Windy Gap water diverted. In those types of years, the same amount of Windy Gap water would be diverted under the Proposed Action as existing conditions; however, the Participants' Windy Gap water would be stored in Chimney Hollow Reservoir as opposed to Granby Reservoir. For example, there is no difference in Windy Gap diversions between the Proposed Action and existing conditions in 1965 (wet year) following two dry years (1963 and 1964), in 1978 (wet year) following 1977 (dry year), and in 1982 (above-average year) following 1981 (dry year). Although there would be additional Windy Gap water diverted under the Proposed Action in

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261	Peak flows between Lake Granby and Windy Gap will be reduced in some years. The Aquatics Report states: "Maximum average monthly flow reductions of up to 20 to 30 percent [will occur] in July and August of wet years. This may cause some shift in habitat as a response to reduction in peak flows, but is unlikely to impact fish populations." (p.39). In spite of the magnitude of these reductions, no evidence is presented to support the assertion that the impacts to fish populations are unlikely. It would be surprising if changes of this magnitude did not result in aquatic resource changes of some significance. Because stream temperatures increase more rapidly when flows are low, extending the period of low flow increases the probability that both daily maximum temperature and weekly average temperatures will increase. As further discussed in "Temperature Effects" below, the Report does not evaluate these potential impacts. **1.3 Changes to the Hydrologic Regime.** The Aquatics Report focuses on the *probability* that the WGFP will impact the Colorado River in any given year. For example, it attempts to assess the probability that the WUA for a particular life stage of a given trout species will increase or decrease as a result of pumping in wet, average, and dry water years. However, the Report does not recognize how changing the *probability* of low flows in any given year impacts the *frequency* with which these changes occur across a period of years. This is surprising because the report does talk about the frequency with which, for example, the WUA available to Juvenile Rainbow Trout below Windy Gap will change (e.g., Table 22 p.45). However, it does not extend this analysis to the relevant time scale. Instead the Report simply talks about the number of average years out of ten that experience the maximum change from existing conditions. By reducing peak flows and by increasing the duration of low flows in average years, the WGFP is essentially creating more years that have a hydrograph that is typical of low flow, or dry years. The Report recognizes that the proportion of years with protracted low flows late in the season will increase, yet no analysis of the consequences of these extended dry year conditions is offered. The proportion is important because population dynamics of many species are very dynamic. Trout, in particular, have highly variable recruitment. The vulnerability of trout varies with both species and life stage. For example, because late-season flows are often correlated with higher temperatures, low flow years may enhance growth of fish fry but place additional stress on juveniles and adults. By reducing growth of juveniles and adults, egg production in spawning season will be low and recruitment the following year poor. If years with poor recruitment are rare, the long-term viability of the population may not suffer as a result of low flow years. Conversely, by increasing the frequency of these low flow years, the WGFP could substantially limit recruitment and thus impair the long-term viability of the population. How the increase in the frequency of years with protracted periods of low flow will impact the trout population has not been assessed. 4	1957, which is a wet year following a drought period, the additional diversions would not cause Colorado streamflows to drop to dry year conditions. For example, under the Proposed Action, an additional 32,420 AF would be diverted in July 1957 compared to existing conditions; however, flows below Windy Gap would still be considerably higher than 90 cfs. The most significant additional diversions under the Proposed Action occur in wet years following wet years, or wet years following average years, which would not increase the incidence of dry-year conditions or prolong drought conditions. Table 3-32 in the FEIS shows that larger flows, ranging from bankfull flows (0.8 x 1.5-yr flow to 2-yr flow) to 25-year flows would continue to occur under the alternatives. This table provides information on when the various high flows would occur during the year, the magnitude of the flows under the different alternatives, and the frequency and duration of such flows. Aquatic ecosystems in rivers with a snowmelt-based hydrograph are maintained by the change in flow throughout the year. River channels and the resulting aquatic habitat are created and maintained by the flows that occur during snowmelt runoff. In general, flows that occur every 2 years maintain the channel characteristics, while high flows that occur less frequently create new habitat. The peak flow magnitudes and recurrence intervals are similar between existing conditions and the Proposed Action (Table 3-32). As such, the ecosystem functions that depend on high flows are not expected to change.
262		262. See response to Comment No. 261 regarding reductions in peak flows and increases in the frequency that low-flow periods would occur during the 47-year study as a result of WGFP alternatives. See response to Comment No. 261 regarding effects to aquatic environment.

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263	Below Windy Gap, both the magnitude and duration of floods with different recurrence intervals (e.g., 2-yr, 5-yr, 10-yr) will tend to be decreased. Similarly, the size and duration of the typical flood in an average year will be reduced. These reductions are likely to be exacerbated by the additional changes that are occurring within the basin (e.g., Moffat Tunnel expansion, urban growth in Summit and Grand Counties) which will also further reduce peak flows. These changes in the flow regime raise a number of important questions which have not been addressed, such as the effect on ecosystem services relating to reduction in volume and duration of flood flows. Will there be a decrease in the efficiency with which fine sediments are flushed through the system and thus a reduction in availability of suitable spawning habitat? What will be the impact of these changes in the flow regime be on other species? Will algal growth be promoted? Will recruitment of riparian species be reduced? Will macroinvertebrate habitat more frequently be buried by fine silts? **1.4 Instream Flow Incremental Methodology.** The bulk of the analysis presented in the Aquatics Report focuses on how changes in flow resulting from the WGFP will affect habitat availability. Although this sort of analysis is useful, as presented, the analysis is incomplete.	263. See response to Comment No. 261 regarding the reduction in peak flows due to WGFP alternatives. The analysis of bed materials and movement showed that the required periodic flushing flow of 450 cfs should be sufficient to transport fine sediments (2 mm or finer) and maintain spawning substrate, macroinvertebrate habitat. Table 3-32 shows that flows exceeding 450 cfs (channel maintenance flows) would continue to occur under the alternatives, as would flows ranging from 510 to 6,520 cfs (bankfull flow to the 25-year flow). A recent evaluation was completed of available streamflow vs. shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and Colorado River streamflows. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations from below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows almost no changes in flows of 150 cfs or less, and for Kremmling shows almost no changes at flows of about 1,000 cfs or less. Sufficient channel maintenance flows would be available to support riparian functions. If the comment on algae refers to diatoms like Didymo, there is no consensus on conditions for this naturally occurring species. Unfortunately, there is a lack of basic biological and ecological knowledge for this organism (Spaulding and Elwell 2007). It thrives under a wide range of freshwater conditions – both hydrological and chemical (Spaulding and Elwell 2007), although it is commonly reported that it prefers streams with low phosphorus and low mean discharge (Miller et al, 2009; Kirkwood et al. 2007). Spaulding and Elwell (2007) found no relation between water velocity and visual biovolume indices. Discussion on sediment transport was added to Section 3.7.2.3 of the FEIS.
264	First, the analysis focuses on the proportion of time a given WUA is available to adult or juvenile brown or rainbow trout. As presented, it is impossible to answer questions about whether or not certain types of habitat are available when they are needed. For example, it does not matter if adequate amounts of spawning habitat are available 95% of the time, if the habitat is never available during the spawning season. An analysis of how the WUA available to each life stage of each species varies over the course of the year is needed. Information should be presented regarding flow and habitat requirements at different life stages for relevant species.	264. The habitat time series analysis is based on the seasonal habitat occurrence when the species or life stage of interest is present in the stream. Therefore, the percent of time available refers only to times when the life stage and species being evaluated would be present in the river. Tables were revised in Section 3.9.2 of the FEIS that show the year-round change in habitat.
265	Second, effects of changes in flow on suitable habitat availability of adult and juvenile life stages are modeled, but effects of flow changes on fry and spawning habitat were not. Typically, all four life stages are evaluated in analyses using the Instream Flow Incremental Methodology (IFIM). Because they are such poor swimmers, comparatively speaking, availability of suitable fry habitat is more sensitive to changes in flow than is availability of habitat for adults. By failing to evaluate how changes in flows impact the availability of fry and spawning habitat, the Aquatics Report systematically ignores potentially critical impacts of the WGFP.	265. The species and life stages evaluated were determined during the discussions with CDPW at the initiation of the study. Since the physical habitat model does
266	Third, as mentioned above, the analyses appear to have been conducted using monthly average flows. Flows vary on a variety of time scales ranging from hours (e.g., during flash floods) to years (e.g., changes in precipitation driven by climatic events like La Niña and El Niño). By using monthly averages, variations occurring on smaller temporal scales can be masked. For example, flows throughout July may be very low but if there was a very large flood during the month, average monthly flows may appear closer to the long-term average. More importantly, by using monthly averages, extreme events tend to be dampened. Given that fish and other aquatic organisms respond to 5	

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266	changes in flow that occur on much shorter time scales, it is inappropriate to evaluate changes in habitat availability using a monthly time step. Furthermore, the exceedence graphs (Figures 27-410) should indicate how time was measured. Does the X-axis represent the percentage of days, months, or years for which a given WUA or percent change in exceedence is exceeded?	not simulate the dynamic change in the streambed, spawning habitat can be indirectly evaluated by the sediment transport parameters, which were used in this evaluation. The sediment transport capacity for spawning substrates are the same for existing conditions and the Proposed Action, and both have sufficient sediment movement to refresh spawning areas. 266. Daily flows were used for the aquatic habitat evaluation as stated in the Methods section (Section 3.9.2.2 of FEIS). Additional tables were generated to clarify the seasonal changes in habitat and are shown in Section 3.9.2 of the FEIS. The y-axis of the new graphs show the percent change for the time-step shown on the x-axis.
267	Fourth, not only do flows vary on shorter time scales than is picked up in monthly averages, but by presenting the results of the analysis as the proportion of time that a given WUA is available, the effects of annual variability are masked. Based on the analysis presented in the Aquatics Report, we cannot answer the question: how much more likely is it that brown trout fry will be limited by low habitat availability in successive years if the WGFP is online, versus the current condition? Similarly, we cannot answer whether or not it is more likely that trout populations will experience a catastrophic event. If, as suggested above, daily flows for the period of record were modeled under the different project alternatives, we could ask questions about how WUA would, in turn, vary. Such an analysis would allow us to ask when and how frequently did the WUA available to the various life stages drop to low levels? These issues could potentially be addressed by changes in the level of aggregation in which the analyses have been done.	267. The IFIM was developed as a tool to compare flow alternatives, not as a method to develop explicit flow recommendations based on WUA alone. The comparisons are made between flow regimes, both hydrologic and management. The daily flows that were used for the analysis are based on both hydrologic year types and management alternatives. This approach has been used by other applications of IFIM, including those by the USGS and USFWS. Long periods of daily records do not allow the analysis of typical conditions, but rather can result in a broad band of continuous habitat traces without a distinct difference between alternatives. To get a more discrete characterization, year types are used, as was the case for the WGFP.
268	Fifth, changes in WUA or temperature are not the only mechanisms by which fish can be impacted. For example, trout could be impacted if changes in flow lead to a collapse of important food resources like the stonefly, *Pteronarcys californica*. Alternatively, if reduced peak flows cause additional sediments suitable for the tubificid worm, *Tubifex tubifex*, to accumulate along the Colorado River below Windy Gap then problems with whirling disease may be exacerbated. As these examples make clear, the report needs to justify why its focus on WUA is appropriate and why some of the other obvious effects of changes in flows have been ignored.	268. Multiple types of analyses were used for the assessment of impacts to aquatic resources. These include hydrology (including peak flows), sediment transport, water quality, two-dimensional hydraulic modeling, and habitat modeling. The syntheses of these analyses are presented in the Aquatic Resources Technical Report and the FEIS. Based on those multiple methods, the peak flows are shown to continue to maintain the channel form, maintain sediment transport for spawning habitat and benthic invertebrate habitat health, have dissolved oxygen levels for healthy fish and macroinvertebrate populations, maintain base flow conditions for existing conditions and the Proposed Action, and maintain the current benthic macroinvertebrate habitat.
269	Finally, at the very least the Report should provide justification for why it does not fully evaluate the environmental impacts of the WGFP on any species other than brown and rainbow trout. The focus on trout species to the exclusion of most other species is inappropriate. Virtually all of the Colorado's aquatic species and many if not most of its riparian species are adapted to the historic flow regime. The report makes no effort to assess how changes in flow may impact other fishes, including the native mottled sculpin, algae, or riparian communities. The EIS should be adequate to satisfy the analysis of impacts to the aquatic environment that must be performed by the Corps of Engineers under the 404(b)(1) guidelines. Limiting the analysis to salmonid and macroinvertebrates is not adequate for 404(b)(1) purposes.	269. The analysis used several metrics to analyze impacts to aquatic resources (see response to Comment No. 268). The FEIS was edited to clarify the use of multiple analyses.
270	**1.5 Unsupported Conclusions.** The Report does give a brief nod to the impacts on aquatic macroinvertebrates, asserting that "[H]abitat needs of the macroinvertebrates present in the Colorado River are similar to those of trout species. Water quality conditions are not expected to change. The species and distributions of macroinvertebrates are not expected to change. The 6	270. See response to Comment Nos. 268 and 269.

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270	abundance should remain the same as observed with the future conditions for all alternatives." (p. 46) However, no evidence is presented for these assertions. Since invertebrates live on the surfaces of and in the interstices between the rocks and cobbles of the stream bottom rather then in the water column where trout are found, it is not really accurate to say that the habitat needs of the two groups are similar. Further, because low flows will not only reduce the proportion of the stream channel that is inundated and thus the WUA, but may also increase the likelihood that the interstitial spaces become clogged with sediments, it is not at all clear that the effects of low flows on habitat availability will be similar for trout and macroinvertebrates. **1.6 Temperature Effects.** The Report fails to adequately address how stream temperatures will be impacted by the WGFP. The Report analysis models how reducing flows will affect temperatures based on average July 25 flows. It concludes that reducing flows will cause an increase in water temperature on the Colorado of between 0.8°C and 4°C on July 25, with the greatest increases seen when flows are reduced to 90 cfs (p.38). Although this analysis is useful, it is unclear how assessing the anticipated increase in stream temperature on July 25 will be extended from a daily maximum to a weekly average. Does this analysis account for the probability that stream temperatures on July 25 are not only affected by the conditions on that day, but by the conditions on previous days? Does reducing the flow through the Colorado River have the same impact on average weekly stream temperatures as it does on maximum daily temperatures?	
271		271. See response to Grand County comment No.125. Please see Section 3.8.4 of the FEIS for a description of temperature mitigation.
272	Because stream temperatures fluctuate more rapidly when flows are low, extending the period of low flow increases the probability that both daily maximum temperatures and weekly average temperatures will increase during those years pumping extends the low flow period. When flows are low the stream is poorly buffered against hot, sunny days. Further, when the low flow period is extended the probability that hot sunny days will occur when flows are low is increased. Thus when the low flow period is extended, there is a greater probability that hot, sunny days will result in higher stream temperatures.	272. See response to Comment No. 271. The dynamic model accounts for an extended low-flow period.
273	By increasing the number of years with protracted low-flow seasons, the WGFP increases the frequency with which critical temperatures (either daily maximum temperatures or maximum weekly average temperatures) will be exceeded. Assuming that the probability of having a temperature exceedence is correlated with the length of the low flow season, increasing the frequency with which years with protracted low flows occur will increase the frequency years with high temperatures are observed. This begs the question: how will increasing the frequency of years with elevated stream temperatures affect the stream biota, generally, and trout specifically?	273. See response to Grand County comment No. 261 and 125.
274	On p. 38 the report states: "Lower flows could increase the potential for exceedence of the weekly maximum average temperature standards for aquatic life, but is unlikely to measurably impact fish populations. This conclusion is based on the observed water temperatures, which occasionally exceed 19°C under current conditions, and the 7	274. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project from those present in the DEIS. Mitigation measures and the effectiveness of those measures are described for each resource in Chapter 3—Environmental Consequences. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E), which includes mitigation of temperature effects in the Colorado River.

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274	healthy fish population that is in the river." That healthy trout coincide with occasional observations of high temperatures is not evidence that the trout are unaffected by high temperatures. Part of the rationale behind temperature standards is the need to protect against sublethal effects that may not be manifest without protracted, repeated exposure to elevated temperatures. That trout have withstood the occasional high temperature observed to date is not evidence that that their populations will remain healthy and vigorous if the frequency (either within a year or across years) with which they are exposed to high temperatures increases. Indeed this observation is not evidence that there have been no effects of the high temperatures observed under current conditions. A more thorough evaluation of the impacts of increased temperatures is warranted. **1.7. Cumulative Effects.** The cumulative effects section (p. 50-55) is both brief and incomplete. As with other sections it focuses on the proportion of time juvenile and adult trout habitat will be reduced. As written, it is impossible to tell which impacts will occur when, as only the proportion of years with reductions in habitat availability and maximum percent change during those years is reported. Thus, the analysis presented does not address the question how will the cumulative impacts of the various foreseeable actions on habitat availability impact the long-term health and viability of the brown and rainbow trout fisheries?	
275		275. Additional analyses were completed with the data from the aquatics habitat modeling. An additional table was added to the aquatic impact discussion in Section 3.9.2.3 to show the seasonal changes in habitat by alternative.
276	There are a number of other problems with the cumulative effects section. First, the Report only analyzes the cumulative impacts of the reasonably foreseeable actions on trout WUA. It does not analyze other potential impacts on the stream ecosystem. Perhaps the most significant oversight is the lack of an analysis of the cumulative impacts of the various reasonably foreseeable actions on temperature – both daily maximums and weekly averages. Again, such an analysis should focus not only on the degree to which temperatures on a given day may increase, but on the likelihood that trout will experience potentially harmful daily or weekly temperatures as a result of more frequent (i.e. more years) and more prolonged (i.e., more days each year) low flow seasons. As before, modeling changes on a daily time step would be useful because it would allow estimates of both daily maximum temperatures and weekly average temperatures to be produced.	276. Additional discussion of the stream ecosystem, including peak flows, sediment transport, water temperature, and habitat was added to Section 3.9.2.3 of the FEIS.
277	Second, as mentioned previously, trout are not the only species likely to be affected by changes in the hydrologic regime. The cumulative impacts of these actions on other species must be considered.	277. See response to Comment No. 276. See FEIS Section 3.9.2.3.
278	Third, the list of "reasonably foreseeable actions expected to affect hydrologic conditions and potentially aquatic resources" (p. 50 is incomplete. There has been no mention of the potential of global climate change to contribute to the cumulative impacts of this project. Although the impacts of climate change are uncertain, reduced precipitation, earlier runoff, and increased late season temperatures are all possible and would all have negative impacts on the river. At the very least, the potential for global climate change to exacerbate the impacts of the WGFP should be discussed.	278. See response to Comment No. 67.
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279	Fourth, the cumulative impacts section does not appear to recognize the importance of the impacts that have already occurred within the Colorado River basin. If, as we suggest, the frequency with which the stream experiences low flow years determines the long-term impact of low flow events, then it is important to recognize that the frequency of low flow years has already been increased by the numerous water projects already operating in the basin. Part of the goal of a cumulative impacts analysis is to ensure that ecosystems do not die the death of a thousand cuts. However, this is hard to ensure if the first 500 are ignored. The cumulative impacts sections must factor in how the existing water projects have increased the frequency and duration of low flow periods.	279. The existing conditions include other past and present water projects. The cumulative effects assessment includes the combined impact of all past, present, and reasonably foreseeable future actions with the alternatives evaluated in the FEIS. The appropriate comparison for the WGFP is the comparison of existing conditions with expected future conditions.
280	**1.8 Study Area** The study focused on riverine habitat in the Colorado River from Lake Granby downstream to the confluence with the Blue River (p. 3), which is expected to input enough water to buffer any further effects downstream. However, this assumes that the Blue River will continue to be managed as it is presently, with high releases (commonly 350 – 1000+ cfs) from Green Mountain Reservoir through most of the year. Moreover, there appears to be some indication that Blue River flows may be reduced by a reduced call for Blue River water to the Shoshone power plant (see "reasonably foreseeable actions" on p. 50). It is reasonable to expect that the less water contributed from the Blue River, the less its buffering capacity. Lastly, capacity of the Blue River to "buffer" hydraulic and temperature changes does not necessarily imply a capacity to buffer ecological changes (e.g., increased downstream export of energy and organisms due to changes in ecosystem function and metabolism). Although the effects of changes in streamflow will be diminished below the Blue River, this does not mean they necessarily will be insignificant. A quantitative assessment is needed that demonstrates the impacts of changes in flow resulting from either Windy Gap or the cumulative impacts of the various projects being considered in the Upper Colorado. This could be done, for example, if a flow analysis demonstrated that the maximum amount of water that could be diverted through Windy Gap was trivial compared to the flow on Colorado below the Blue River – even during periods of low flow.	280. The area of potential effect may vary among the resources, depending on the likely area of impact. Because hydrologic impacts of the WGFP on the Colorado River diminish below the Blue River confluence, measurable impacts to aquatic resources are unlikely farther downstream. The Aquatic Resource section of the DEIS includes an analysis of impacts to habitat downstream of the Blue River confluence. Results of the analysis of impacts to fish habitat for the below the Blue River location are indicative of likely impacts for several miles below the Colorado River. Those impacts are displayed in Tables 3-90 and 3-91 in the DEIS. The analysis did not assume that the Blue River would "buffer the effects of WGFP" rather, the proportion of flow affected by WGFP to the total flow in the Colorado River downstream of the Blue River is small and, thus, effects to aquatic habitat diminish downstream.
281	The Colorado River was divided into two reaches for the IFIM analysis (p. 66). The first reach extended from Windy Gap to the Williams Fork River and the second from the Williams Fork Reservoir to the Blue. Although it was stated that this division was made on the basis of "hydrology and habitat characteristics" (p. 70), evidence supporting this assertion is lacking. Similarly, evidence demonstrating that the two study sites established to represent these reaches were, in fact, "representative" (p. 36) also is lacking. Because of this it is difficult to evaluate how the hydrology data were combined with the habitat data from Lone Buck or Breeze to scale up to the entire "Habitat Reach" (p.37). 9	281. Table 30 in the Aquatic Resource Technical Report shows the reach variables and changes in each reach. The site selection process followed the guidelines in the IFIM analysis.

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281	These may not be appropriate representative reaches, and it is perhaps unrealistic to presume that each segment could be represented by one representative reach for two reasons: (1) Geomorphology. The "Lone Buck" reach represents the floodplain run-riffle habitat that characterizes much of the upstream segment. However this reach does not represent the constrained higher-gradient habitat which runs through Byers Canyon. Likewise the "Breeze" reach represents the floodplain run-riffle habitat that characterizes much of the downstream segment, but does not represent the slow moving, low gradient habitat in the lower reaches nearer to Kremmling. (2) Land Management. Both representative reaches are located on State Wildlife Areas, which are managed to provide habitat for fish and wildlife. These areas have reduced livestock grazing regimes, and reduced livestock access to the stream and riparian zone. It is unlikely that other ranches in the Colorado River valley manage livestock, grazing, and other land uses in an equally sustainable way.	
282	A related concern involves the propagation of error. How sensitive is the IFIM analysis to errors made in the field either in the measurement of hydrologic parameters or in the proportion of different habitat types? Similarly, before the conclusion can be reached that there will be few impacts of any of the alternatives, it would be good to know how sensitive the IFIM is to changes in discharge within the Colorado River.	282. Several sources of errors can affect the IFIM modeling. These include errors in the field measurements and model errors. For this analysis, a threshold of 15% change was used as the level above which impacts to aquatic habitat were considered to have effects. Other investigators in Oregon and Washington have also used this threshold level (Instream Flow Council 2008 – Short Course - What About Those High Flows have used this threshold level? Environmental Flow Requirements for High Flows on Streams and Rivers, Moderator: Alan Wald, Washington Department of Fish & Wildlife, October 6, 2008). The rationale for selecting a threshold level is based on the errors associated with field measurements and the error within the habitat models.
283	**1.9 Additional Incompletely Addressed Impacts.** Although changes in flow associated with WGFP may have the greatest impact on aquatic biota, other changes resulting from WGFP and associated cumulative changes should also be explicitly considered in the Report. Discussion of the impact of the presence and operation of the WGFP facilities on aquatic biota (e.g., the obstacle to fish movement caused by the Windy Gap dam, or possible fish entrainment from pumping activities) is almost entirely lacking. Whether this should be done as part of the evaluation of the cumulative impacts, or as the discussion of the WGFP specific impacts is unclear, but it should be addressed in the report.	283. No physical changes such as new dams or diversions are part of the WGFP on the Colorado River. As such, the existing features for the WGFP and all other structures on the river that impact aquatic resources would continue to have the same level of impact.
284	As with temperature, discussion of WGFP impacts on other water quality parameters was brief. Although the report states that dissolved oxygen levels below Windy Gap could decrease by 0.6 mg/L, it does not discuss what they will likely be or how frequently they will be reduced. As a result, it is difficult to assess what the impacts of this reduction may be other than knowing that trout will not be acutely impacted. As with temperature, knowing that dissolved oxygen remains above the lethal minimum oxygen requirement of 5.0 mg/L is no assurance that chronic effects will not result from the change in operations.	284. Section 3.9.2.3 of the DEIS and FEIS discuss the relationship between the 0.6 mg/l reduction and the 5.0 mg/l level.

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285	Although the Report states that there will be no change in the trophic state of west slope streams and reservoirs, it does not provide data in support of this conclusion. How will nutrient availability in both the Colorado River and the affected reservoirs change as a result of the WGFP? Will these changes have any impacts aside from their potential to alter the tropic state of these ecosystems? **2.0 SPECIFIC COMMENTS BY PAGE**	285. Mitigation measures are included in the FEIS that will offset the anticipated additional nutrients that would be added to the Three Lakes system as a result of the WGFP. Also see responses to Grand County comments No. 137 and 138. Current and predicted ammonia and nitrate concentrations are well below the standards (see Table 2 in the Stream Water Quality Technical Report and Section 3.8.2.4 in the FEIS).
286	**Comment No. 1** **Page 2:** a. The Report contains legal conclusions about prepositioning that are contrary to Colorado law. Grand County and the Colorado River Water Conservation District have sent many letters to the Bureau of Reclamation raising concerns about prepositioning. Because of reliance on legal conclusions that do not conform to Colorado law, subsequent conclusions in the Aquatics Report are based on the false premise that there will be no expansions of C-BT diversions. Before the actual levels of diversions can be quantified, the proponents of the WGFP will need to file an application to change the place of storage of C-BT water rights (assuming Reclamation will consent) and of the Windy Gap water rights to allow them to be stored in the proposed new reservoirs. Whether or not there will in fact not be any expansion of the C-BT and Windy Gap water rights from existing conditions will depend on the decrees issued by the water court.	286. See response to comment No. 197.
287	**Comment No. 2** **Page 3:** **a.** The study area should extend to 15- mile reach for endangered species to comply with the Endangered Species Act.	287. Potential effects to Colorado River endangered fish species are addressed in Section 3.13 of the FEIS.
288	**Comment No. 3** **Page 10:** a. Macroinvertebrate sampling was done on September 17, 2004 for assessment of existing conditions. No effort is made to explain how the flows during this period compare to average, wet or dry year hydrology presented in the Technical Reports. Conclusions about water quality are based on a worst case analysis for July 25th . Are macroinvertebrate population metrics expected to be different during the falling limb of the hydrograph (July) than at base flow (September)?	288. Macroinvertebrate communities in snowmelt-dominated rivers have evolved to persist with the general shape of the hydrograph. Further, most macroinvertebrates in snowmelt rivers have evolved to avoid runoff. This is accomplished by being very small (egg or early instar), or out of the water (adult phase). Many of the species in the Colorado River have one complete life cycle per year and deposit their eggs in spring or summer. Either fall or spring sampling is typical to obtain information regarding the invertebrate community structure. The September sampling date is a time when field conditions are safe and the specimens are of a size that is more easily identified to the species level than earlier in the year. The number of species that can be identified directly influences macroinvertebrate metrics. The population metrics are expected to be different during July and September mainly due to the inability to capture and identify the species in July.
289	**Comment No. 4** **Page 13:** a. Table 1. Are the temperature values shown based on daily, maximum or weekly average? Or some other value?	289. These are absolute values that depict the range of tolerance or optima that apply to each life stage. The time increment varied by study.
290	b. What is the basis of statement that management actions of stocking and regulations limiting harvesting affect fish population more than environmental conditions? Describe what is meant by catastrophic event.	290. The basis for the statement regarding management actions comes from general fishery principles and specific studies conducted by CDPW in the 1970s and 1980s. There is a large body of literature on the effect of restrictions to harvest limits and types of tackle. In general, when harvest limits are enforced or no harvest is allowed (such as catch and release), fish populations increase. Examples of catastrophic events are provided on page 13 of the Aquatic Resource Technical Report.
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291	**Comment No. 5** **Page 14:** a. Table 2. What were the native species in the Colorado River in the past, before C-BT and Moffat? Cutthroat trout?	291. There were 14 species native to the upper Colorado Basin prior to European settlement. The only native trout in the upper Colorado River was the Colorado River cutthroat trout.
292	b. Table 3. Where range of temperatures and dissolved oxygen are given, at what locations were samples taken? When?	292. The locations are provided in Table 3 of the Stream Water Quality Technical Report (ERO and AMEC 2007).
293	**Comment No. 6** **Page 15:** a. Senate Document 80, the document that controls operation of the C-BT, states that one of the primary purposes of C-BT is "[T]o preserve the fishing and recreational facilities and the scenic attraction of Grand Lake, the Colorado River…" As part of discussion of past actions, there should be a discussion of whether preservation of fishing and recreation has occurred. The Report should rely on and make reference to the 1951 report prepared by the US Fish and Wildlife for the Bureau of Reclamation which detailed the devastating effects of Granby Dam on the river.	293. See responses to Grand County comments No. 10 through 14.
294	b. How was the reduction in the flows established by 1961 Operating Principles for the C-BT project modeled? The Report should disclose the impacts that occurred in September 2006 when the flows below Granby dam were reduced to 20 cfs.	294. Flows below Granby are modeled as they are stated in the 1961 Principles. The 1961 Principles allow for reductions dependent upon the forecasted inflows to the Three Lakes System as discussed in paragraph (3) of the 1961 Principles.
295	c. Portions of the River below Windy Gap are also a Gold Medal Fishery.	295. The FEIS reports the Gold Medal designation.
296	d. Existing bypass flow requirements below Lake Granby and Windy Gap are described, but there is no assessment whether these flows are appropriate for protection of the environment or whether prolonged durations at those flow levels as a result of WGFP alternatives will have adverse impacts.	296. These minimum flows are held by CWCB and, as stated in the statute, protect the environment to a "reasonable degree." Reclamation assumes the specified flows were derived with the techniques specified by CWCB and, therefore, are appropriate minimum flows. The flows below Granby were derived following a study and report by the Fish and Wildlife Service and a decision by the Secretary of the Interior in accordance with the requirements of Stipulation l in Senate Document 80. The WGFP would not change the minimum flow requirements below Granby Reservoir or Windy Gap. The habitat analysis, using daily flows, evaluated the effects of flows that result from WGFP compared to existing conditions, which included maintaining existing bypass flows
297	**Comment No. 7** **Page 24:** a. Why are the metrics of fish population for Willow Creek in Table 10 different than those for the Colorado River found in Tables 4 and 5, page 19?	297. The sources of data varied by collection and where possible, the same metrics are displayed. In instances where the metrics differ, the data were not available to convert to a common metric.
298	**Comment No. 8** **Page 25:** a. The macroinvertebrate metrics in Table 11 are fairly consistent at the three sites on Willow Creek. Only two sites are used for to represent the much longer reach of the Colorado River, with many more environmental influences along that reach. There is not the same consistency of these metrics for the Colorado River (see Tables 8 & 9, page 21) as for Willow Creek. Willow Creek data were collected in May 1997 whereas Colorado River data were collected in September 2004. There is no discussion as to whether this inconsistency between results for Willow Creek and the Colorado River demonstrates the effects of seasons (May versus September) on macroinvertebrate 12	298. Both Willow Creek and the Colorado River were segmented according to standard IFIM protocols. The focus of the invertebrate sampling was the effects of the WGFP, which is the reason for the selection of the sampling sites. The May 1 sample in Willow Creek was collected at a time when the majority of the expected taxa were susceptible to capture and large enough for accurate identification. The same applies to the fall sample for the Colorado River.

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298	metrics, or hydraulics (early runoff versus base flow), or hydrology (were 1997 & 2004 wet, dry or average years?).	299. Irrespective of the sucker population in each lake, Granby and Shadow Mountain Reservoirs and Grand Lake each provide recreational fishing opportunities as stated in the report. The reason for this statement is unclear since most other large mountain lakes and reservoirs have similar population levels of suckers. The tables do not present population levels. Many factors can affect the sampling results. CDPW data was used to show the species present, not to infer population dynamics.
299	**Comment No. 9** **Pages 27-29:** a. The text reports that all these lakes and reservoirs provide recreational fishing. What is not stated, but is demonstrated by the tables, is that the reservoirs are dominated by non-native suckers, which are not considered a game fish: Table 14 Shadow Mountain Reservoir – 81% suckers; Table 15 Granby Reservoir – 86% suckers; and Table 16 Windy Gap Reservoir – 89% suckers.	
300	**Comment No. 10** **Page 29:** a. There is a discussion of Whirling Disease, but not on the effects of the WGFP on that disease. As part of the past actions, Windy Gap Reservoir became a breeding ground for tubifex worm which caused and contributed to Whirling Disease in the Colorado River. What data forms the basis of statement that Windy Gap is no longer considered a "major source" of TAM?	300. The statement attributing lower whirling disease pathogens comes from Mr. Barry Nehring of CDPW. The FEIS was edited to note the source of that statement. The lower number of pathogens may be, in part, due to a shift in the species composition of tubifex worms in Windy Gap Reservoir. In a presentation made on the Colorado River fishery, Jon Ewert, CDPW biologist, stated that the nonhost tubifex species was becoming more prevalent in the reservoir and was part of the reason for the lower incidence of whirling disease pathogens (Jon Ewert, CDPW, July 14, 2009).
301	**Comment No. 11** **Page 32:** a. Need to extend study to 15 mile reach for endangered species.	301. See response to Comment No. 287.
302	b. What data forms the basis of the statement that the Colorado River cutthroat does not occur in the study area? What was the cutthroat in Shadow Mountain Reservoir? What was the dominant species in the Upper Colorado River before damming of the river and diversions by C-BT, Denver and Windy Gap? Wasn't it the Colorado River cutthroat? How has the disappearance of the Colorado River cutthroat from the head waters of the Colorado River been factored into past actions?	302. Available data for fish populations was acquired from CDPW. No Colorado River cutthroat trout were reported in CDPW data. The decline in Colorado River cutthroat populations is primarily from the introduction of nonnative salmonids and is unrelated to the WGFP. See response to Comment No. 291.
303	**Comment No. 12** **Page 34:** a. Figure 8. Typical hydrograph is presented based on average daily flows. How was this daily hydrograph used in the Aquatics Report, if at all? Graphs of low daily flows and high daily flows would be helpful for comparison purposes.	303. Daily flows were used in all habitat analyses. Figures of average hydrology were added to Section 3.9.2.3 of the FEIS for the Below Windy Gap and Above the Blue River reaches to illustrate how the daily data were used in the habitat analysis.
304	**Comment No. 13** **Page 36:** a. Only two sites were selected for studying fish habitat, and the sites are stated to be representative of the reach of the river affected. Those two sites are not representative of the reach from Granby Dam to Windy Gap Reservoir, nor the reach from Windy Gap to the head of Byers Canyon, nor of the reach in Byers Canyon, nor the reach below Con Ritchards through the Kremmling area to the head of Gore Canyon, nor of the reach in Gore Canyon.	304. The site selection process followed the guidelines in the IFIM literature. Table 30 in the Aquatic Resource Technical Report shows the reach variables and the changes in each reach. The final site selection was completed in conjunction with CDPW at the initiation of the study. The sites are representative.
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305	b. The report states the hydrologic conditions at six sites were combined with the habitat data from the two sites to determine changes to fish habitat. The report does not say how the hydrologic data was used in the River 2D model, but the report states that "average dry, and wet years were modeled under the various WGFP alternatives" not daily stream flows.	305. FEIS Section 3.9.2.3 was edited to clarify the use of the hydrology and habitat data.
306	**Comment No. 14** **Page 37:** a. Figure 9. This schematic should also be represented by a field map showing these locations on the ground. Are these locations the same as where a stream gage is located? If so, this should be stated. If so, how were actual daily gauged stream flows used to calibrate the modeled flows in River 2D?	306. The figure depicts the study area as the data were applied. The habitat sites represent longer reaches than the hydrology data. The hydrology data were derived from hydrology locations that were representative of homogeneous hydrology. A field map would have the same schematic appearance.
307	**Comment No. 15** **Page 38** a. What is the basis for statement that a "qualitative" approach for assessing changes in fish community/population is sufficient for this analysis? The Report concludes that factors such as fishing pressure, management and stocking can change fish population more than physical habitat. What is the basis of this statement? What fishing pressures have been experienced in the study area? What management and stocking practices are in place in study area? What about Whirling Disease's impact on Rainbow Trout?	307. See response to Comment No. 290.
308	b. There are no clear criteria to define an "impact" to the aquatic environment. For example, temperature changes are reported at an accuracy of a tenth of a degree Celsius in the Stream Water Quality Report for the July 25th worst case. The Aquatics Report then concludes that although temperatures are projected to increase 4 degrees to about 19 degrees as a result of WGFP in this worst case, and thus will exceed State of Colorado water quality standards for temperature below Windy Gap, it is "unlikely to measurably impact fish populations." A water quality standard has been established to protect the fish; a violation of this standard is, in and of itself, an impact and the standard is the criterion to measure whether impacts will occur.	308. The discussion of the threshold for impact analysis was added to the Section 3.9.2.2 of the FEIS. Also, see response to Comment No. 282.
309	**Comment No. 16** **Page 37:** a. The basis for not studying daily values in May, June, July, August is not revealed. The assumption is that flows are high in May and June, which may or may not be true, depending upon the year, and the flows that year. It appears that more refined water quality studies were conducted when the July 25th flows below Windy Gap dropped below 90 cfs. This method, if properly done, is what needs to occur on a daily basis to determine impacts. The 19° C predicted temperature is just above the Williams Fork confluence, miles downstream. What was the predicted temperature just below Windy Gap? The Report does not reference the temperature data gathered by Grand County Network. How does that temperature data compare to Miller's data? Isn't it a fact that the lower flows "will" (not could potentially) increase the weekly maximum average temperature below Windy Gap? There is no discussion of the interim 14	309. Daily flows were modeled and the data incorporated into the FEIS. Predicted worst-case stream temperatures for July 25 for the Colorado River downstream for 45 miles are shown in the figures in Section 3.8.2.4 of the FEIS. Grand County water temperature data for the Lone Buck site in 2007 was presented in Figure 3-29 of the DEIS. WGFP diversions are projected to increase stream temperature downstream. Effects of the WGFP on temperatures downstream of Windy Gap Reservoir were further evaluated with a dynamic temperature model as described in Section 3.8.2 of the FEIS. The Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with CRS 37-60-122.2 includes measures to minimize temperature standard exceedances associated with the WGFP. There is no data to show that the condition factor of any trout species during summer in this reach of the river is affected by water temperature.

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309	temperature standard on this reach. Why? Are the Rainbow Trout healthy in this reach of the river, as stated in the Report?	
310	**Comment No. 17** **Pages 38-47:** a. Out of a 292 page report, only 7 pages with three tables are devoted to describing the impacts on the streams on the West Slope.	310. The appendices with additional supporting data for West Slope impacts are cited and included in the revised Aquatic Resource Technical Report.
311	**Comment No. 18** **Page 39:** a. Contrary to the statement that fish habitat data is not available for the reach between Granby Dam and Windy Gap, the 1951 Fish and Wildlife Report studied this reach extensively. As part of past, present and future actions, this 1951 report should be independently factored into the WGFP analysis – from a scientific perspective. The statement is made (without any supporting basis) that there may be shift in habitat, but unlikely to impact fish populations. Where would the impacted habitat be located and where would the fish shift to find suitable habitat? When would this occur? Under what circumstances? What are the daily flows when a shift would occur?	311. A report that documents conditions in 1951 is not appropriate for use in 2008; however, we understand that Grand County has completed studies in 2007 for the Colorado River between Granby and Windy Gap Reservoir. The Grand County SMP is discussed in the FEIS, but the SMP had different objectives than the WGFP EIS. The statement regarding the shift in habitat was referring to a spatial change for the location of available habitat within the river channel due to changes in depth or velocity.
312	b. It is not surprising that the habitat model shows a consistent pattern for the WGFP alternatives. That is what happens when "monthly averages" are used – everything is "smoothed" out - spikes in flows are gone, back to back days of low flows disappear, series of low flow days or high flow days are masked, daily opportunities to divert based on river conditions get averaged, etc. It is not a real picture of the impacts. It is perhaps for this reason that the "impacts" in figures 27-231 are presented in such a meaningless manner as: (1) percentage change in exceedence and (2) percent change in percent exceedence – without a correlation of flows.	312. Since this is a "Technical Report," the data are presented in the usual format for this type of analysis. Daily flows were used for the habitat analysis. The WGFP Aquatic Resource Report (Miller 2010) was revised to provide additional analysis of impacts to aquatic habitat. The results are included in Section 3.9.3 of the FEIS.
313	c. The Report concludes no "substantial" change in fish habitat at 4 specified sites as a result of any WGFP alternative in all flow conditions. However, Tables 21 and 22 (p44 and 45) show some of these 4 sites with 24% loss in habitat (e.g. Hot Sulphur) in wet years (frequency of 1 in 10 years - it is not clear if that is 1 in 10 wet years or the wet year frequency is 1 out of 10 years, as in the Water Resources Report). The Report also states that below Windy Gap "substantial" (20-30%) losses of habitat occur for all WGFP alternatives for both Brown and Rainbow trout. Then it states these losses only occur 10-20% of the time. Who determines what is a "substantial" change?	313. The maximum changes in habitat values for the proposed action occur at a time of year when there is much more habitat available than during the fall and winter when the lowest amount of habitat occurs. For example, see Figures 83 and 85 for juvenile rainbow trout.
314	**Comment No. 19** **Pages 43-45:** a. Tables 20, 21 and 22. This is the "heart" of the impact analysis. There are a number of problems. First, the percent change could be an increase of decrease in habitat, which is not shown. Second, the frequency of occurrence is measured in "years," not days or even months. The model should show the days in the months of the years that the impacts occur. Third, although life stages are said to be shown, the spawning stage is not presented. Fourth, no basis is stated for asserting that dry year flow conditions would not change. Fifth, the statement that four of the sites exhibited no 15	314. The summary tables were revised in the FEIS to note positive or negative changes. The data were generated from daily flows and then adjusted for the yearly recurrence. All life stages modeled are presented in the table. There are no changes to flow in dry years; therefore, there is no change in habitat. The narrative in Section 3.9.2 of the FEIS was edited to reflect the revisions to the tables. The data presentation was changed to a seasonal analysis rather than the exceedance values presented in the DEIS.

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314	substantial change is not borne out by the table. Sixth, what is considered substantial decrease in habitat? 20-30% decrease according to the Report, but on an average monthly basis. How does this translate into days of decrease in habitat and what are the flows on those days?	
315	**Comment No. 20** **Page 46:** a. It is not surprising that fish habitat changes for all alternatives are very similar because averages will tend to smooth out the bumps. An impact, even in 1 out of 10 years is an impact, especially if the flow and habitat are reduced on a day or a series of days, which is not shown. The measure of the frequency of impact in years is too broad. It needs to be brought down to a daily basis to have any meaning.	315. Daily flows were used in the analysis. See additional tables and discussion in Section 3.9.2.3 of the FEIS that show the duration of changes in habitat.
316	b. What is the basis of the statements on this page about the trout being able to withstand impacts based on frequency of years of impact?	316. The general literature regarding fish ecology and trout life history were relied on for the statement.
317	c. The Report concludes that because trout in the study area have a maximum age of about 6 to 7 years, the loss of habitat associated with the WGFP alternatives that are projected to occur less frequently than their life span (e.g. 2 out of 10 years) are not consequential. This conclusion makes no sense: there is a significant habitat loss (e.g. 24% reduction), and there is no consideration of losses for other subsequent hydrologic years. The entire population present at that time would be affected even if it is only twice in 10 years	317. The population present at the time of any decrease or increase could be effected; however, the duration of the increase or decrease also must be considered. Additional analyses were completed using the same data set to show the duration of the change in habitat. Those analysis were included in Section 3.9.2.3 of the FEIS and the Aquatic Resource Technical Report.
318	**Comment No. 21** **Pages 51:** a. One very short paragraph in the Aquatics Report asserts fish habitat impacts under cumulative impact analysis is very similar to those described in the section on direct effects of WGFP alternatives. However a comparison of Tables 25 and 26 with Table 21 and 22 shows additional losses from cumulative affects typically at least 5% more than direct effects and as much as 18% additional habitat loss for adult Rainbows above the Blue River in average years. Interpretation of the data in these tables in the text is misleading at best.	318. See response to Comment No. 317.
319	**Comment No. 22** **Page 51 and Tables 26 and 27:** a. The problems concerning the analysis of direct impacts are multiplied when attempting to look at cumulative impacts, especially when it comes to daily flows and the need to take a "hard look" at impacts. The conclusion presented in Tables 26 and 27 cannot be verified, because monthly averages are shown. The statement that this is a "slight increase in loss of habitat but a slight decrease in frequency" is not explained because each of the reasonably foreseeable actions is not described. Accordingly it is impossible to know which of the actions caused the incremental increase in loss of habitat and which of the actions caused a slight decrease in frequency and why this phenomenon occurred.	319. The analysis was based on daily flows not monthly flows. The effects of reasonably foreseeable actions were not segregated in the analysis. See the additional discussion added to Section 3.9.3 in the FEIS.
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320	**Comment No. 23 Page 66:** a. As described on page 66, the output from a stream flow model should show "changes in habitat for a duration of time". Because fish live on a daily basis, that habitat change should be modeled on a daily time step.	320. See response to Comment No. 319.
321	**Comment No. 24 Page 73:** a. Figure 14. This photograph shows low flows with rocks exposed as "existing conditions." The existing conditions include substantial transmountain diversions by past actions. Where is the analysis and comparison of pre-development flows (past) to existing flows (current) to reasonably foreseeable cumulative actions (future) and the impacts on the aquatic system?	321. The affected environment for all resource evaluations is based on existing conditions at the time the reports were written. Existing conditions reflect past actions, such as the Windy Gap Project, which was completed in 1985, and other actions since that time. Existing conditions, as well as the No Action Alternative, provide the baseline for comparison of the incremental impacts of the Proposed Action and other alternatives. To provide a consistent comparison of the impacts of the alternative actions, the cumulative effects analysis uses the same baseline (existing conditions and No Action) as the direct effects analysis. The cumulative effects analysis includes the effects of the alternative WGFP actions added to existing conditions, which reflect past actions, plus the incremental effects from identified reasonably foreseeable actions. The cumulative effects evaluation represents what the environment would look like in the future if all of the reasonably foreseeable actions are implemented along with one of the WGFP alternatives.
322	**Comment No. 25 Page 74:** a. The Report recognizes that the "actual habitat experienced by species is a function of the discharge at the site over time." Because rivers flow on a daily basis and changes in flows occur daily, it is important to know the flow regimen of the river on any particular day.	
323	b. The Report recognizes the importance of the habitat flow step over time, but fails to make an analysis of the daily flows. Instead, "for this study, the flows from the Windy Gap analysis and monthly gage data (ERO and Boyle 2007) was used to generate a baseline and proposed action hydrology data sets." The "hydrology data set of interest is copied into spreadsheet columns." That is, this is the "input" based on "monthly average flows".	322. The analysis used daily flows. 323. The analysis used daily flows.
324	**Comment No. 26 Page 78:** a. Whirling Disease is a "limiting factor" for Rainbow Trout, but no further discussion is provided as to whether the WGFP alternatives will increase the disease.	324. There are many factors that could control or curtail the spread of whirling disease. Whirling disease in particular is widespread across Colorado and has resulted in the loss or substantial reduction of rainbow trout populations in most of the state's rivers. The CDPW is actively researching ways to counteract whirling disease within the river systems, including stocking alternate species that are less susceptible to whirling disease. See also response to Grand County Comment No. 300. Given the complexity of the problem and the lack of a specific cause-and-effect relationship, we have tried to address the expected changes qualitatively based on the best available data.
325	**Comment No. 27 Page 82:** a. The Report notes that the habitat for both species peaks at both sites between 400 cfs and 500 cfs. It is not clear if those peaks are transposed up or down the stream to different sites with different habitat conditions. A range of flows preferred by trout should be provided.	325. The range of habitat and flow is presented in the figures. The habitat function applies to the reach of stream it represents.
326	**Comment No. 28 Pages 84-86:** a. Figures 20 to Figure 23 are the most helpful in showing the Habitat Area with a flow rate in cfs as it is typically done for these types of study. All of the impacts should be done showing impacts at a given rate of flow. Without translating this 17	326. The habitat time series translates the habitat flow function to habitat over time using the daily hydrology. The results displayed in the habitat time series graphs and tables incorporate the impacts on a daily basis.

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326	information to flows, the impacts cannot be readily determined by those familiar with stream flows measured in cfs or whether there is an impact to fish on a given day. 18	

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COLEY/FORREST

990 S. ADAMS WAY • DENVER, CO 80209 • JTOWNSEND@COLEYFORREST.COM

Date: December 15, 2008

To: Lurline Underbrink-Curran, County Manager
Grand County, Colorado

From: Jean Townsend, President
Coley/Forrest, Inc.

RE: WINDY GAP FIRMING PROJECT - DRAFT ENVIRONMENTAL IMPACT REPORT (DES 08-30)

This memorandum includes a review of the *Draft Windy Gap Firming Project – Draft Environmental Impact Statement* (DES 08-30) (DEIS) with emphasis on land use, recreation, visual quality and socioeconomic components in Grand County.

Section 1.0 introduces issues, concerns and potential inadequacies of the DEIS. Section 2.0 provides page-specific comments that correspond with the issues referenced in Section 1.0.

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	1.0 GENERAL COMMENTS This section introduces issues and concerns about specific topics presented in the DEIS that affect Grand County. Where appropriate, page-specific comments are listed at the conclusion of the discussion of each issue or concern. These comments are presented in Section 2.0. – The first three sections address impacts that have been excluded from consideration. Some were mentioned in the *Public Scoping Report* but excluded (1.1); some were mentioned in the DEIS in a qualitative manner and then dismissed (1.2); some are simply excluded from consideration (1.3) – The next two sections discuss concerns about the baseline conditions and methodology (1.4) and the definition of the No Action Alternative (1.5). – The next four sections summarize concerns about specific sections of the DEIS including land use (1.6), recreation (1.7), visual impacts (1.8) and socioeconomic (1.9). – The final section discusses mitigation. (1.10). **1.1 IMPACTS LISTED IN PUBLIC SCOPING REPORT** The *Public Scoping Report* (ERO Resources, December 2003) lists a number of issues and concerns related to potential Windy Gap Firming Project (WGFP) land use, recreation, visual, and socioeconomic impacts in Grand County. However, a number of these concerns either were not addressed or were not addressed comprehensively in the DEIS. Some illustrative examples follow. All page references in this section are from the *Public Scoping Report*. ***Land Use Remarks:*** – Two remarks regarding agriculture were: "Disclose effects to irrigation lands and rights downstream of the project and any associated economic effects." *(page D-10)* and "Evaluate effects to agricultural/irrigation users in the Colorado River Basin." *(page D-11)* – Land use concerns related to lakeshore properties "from an alluvial buildup on the Grand Lake side of the outlet canal" were recorded. *(page 15)* – "Landowner development plans for portions of the Jasper Reservoir should be taken into consideration." (p*age D-12)* ***Recreation Remarks:*** – A specific request to "evaluate recreation impacts on Grand Lake" was recorded. *(page D-11)* REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 2 OF 40	327. See response to Comment Nos. 328 through 339. 328. See response to Comment No. 348. 329. A discussion of the delta located in Grand Lake at the east end of the channel is included in the revised FEIS. It is very difficult to quantitatively describe the factors influencing the development of this delta given the existing problems with sediment in Shadow Mountain Reservoir. While it is possible that the Farr pumping contributes to the formation of the delta, there is insufficient information to determine the cause of the delta. 330. Construction of the Jasper East Reservoir would directly affect individual properties that may be subject to acquisition for reservoir construction and operation. Most of the reservoir site is owned by the Subdistrict and Reclamation. As pointed out in the Socioeconomics section of the DEIS, construction of Jasper East Reservoir may result in beneficial effects to nearby private property if recreation is developed at that site. 331. As described in the Recreation section of the DEIS, none of the proposed alternatives would affect water levels at Grand Lake and, therefore, would not result in any changes to recreation activities or opportunities. Nutrient mitigation measures, as summarized in Section 3.25 of the FEIS, would address water quality impacts to the Three Lakes system as a result of the WGFP and any associated impacts to recreation.

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332	– Several concerns about aquatic resources related directly to fishing in the Colorado River included "concern about fish kills due to stream flow changes", "impacts to aquatic resources from water temperature changes and stream flow changes" and "potential impacts to all Colorado River fish species." *(page D-8)*	332. The Aquatic Resources section of the FEIS discusses impacts to fish. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E) to address impacts to aquatic resources. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).
	Socioeconomic Remarks:	
333	– Socioeconomic issues in Grand County included "potential impacts to tourism and recreation industries" (not just active recreation participants using publicly accessed facilities), "additional costs associated with the potential need to upgrade wastewater treatment plants", and "economic impacts to the communities of Grand Lake, Kremmling and Hot Sulpher Springs." *(pages 14 and D-10)*	333. The focus of the socioeconomics analysis is on the water-based recreation activities of fishing and boating because those activities are where the majority of effects are likely to occur. Proposed nutrient, temperature, and other aquatic resource mitigation measures, as summarized in Section 3.25 of the FEIS, would reduce the potential for adverse economic effects.
334	– Two broad socioeconomic impact remarks were provided: "Evaluate baseline conditions and future impacts to Grand County's water-based recreation economy and tourism industry." *(page D-10)* and "Evaluate impacts to the Grand County economy and its ability to grow if water diversions from the basin increase." *(page D-11)*	334. As noted in the preceding response, the socioeconomics analysis specifically focuses on water-based recreation, including the affected environment and future impacts. There is no evidence that there would be insufficient water for future Grand County growth because of the WGFP or other reasonably foreseeable projects. In the 1980 *Agreement Concerning the Windy Gap Project and the Azure Reservoir Power Project*, the Subdistrict subordinated its Windy Gap decrees to all present and future in-basin irrigation, domestic, and municipal uses, excluding industrial uses, on the Colorado and Fraser rivers and their tributaries above Windy Gap Reservoir.
	Visual Impact Remark:	
335	– Visual impact scoping remarks included "impacts to scenic resources caused by streamflow depletions." *(page D-10)*	335. The Visual Quality section of the DEIS includes discussion on effects to scenic quality under the alternatives.
	Water Resource and Wastewater Treatment Remarks:	
336	– "Calculate impacts of worst case scenarios on flows and storage." *(page D-5)*	336. The DEIS evaluated the hydrologic effects for a 47-year period or record that included a range of average, wet, and dry conditions. In addition, the EIS provided an analysis of impacts to water quality, aquatic life, and other resources under minimum instream flow of 90 cfs allowable below Windy Gap Reservoir. The DEIS provided an analysis of storage in Granby Reservoir and effects to resources under a series of dry years that would lower the reservoir level. Both of these analyses were provided in Section 3.5.2.6 of the DEIS.
337	– "Evaluate future water supplies for Kremmling and Hot Sulphur Springs *(page D-5)*	337. Kremmling does not get its water supply from the Colorado River. Hot Sulphur Springs has a right to divert 3.34 cfs of water from the Colorado River that is senior to the Windy Gap diversion rights. Colorado water law states that Windy Gap cannot impair Hot Sulphur Springs' more senior water right to divert this water. Evaluating future water supplies for these towns is beyond the scope of the Proposed Action.
338	– "Evaluate impacts to water and wastewater facilities in the Fraser and Colorado River Basins. *(page D-5)*	338. Water and wastewater facilities on the Fraser River would not be affected by the WGFP. However, proposed nutrient mitigation would likely improve water
339	– Several remarks addressed "…the amount of water that would remain available for West Slope needs in the Fraser River Basin and the communities of Hot Sulphur Springs and Kremmling on the Colorado River." *(page 11)*	
	1.2 IMPACTS ACKNOWLEDGED IN DEIS	
340	There are many instances in which the DEIS acknowledges a negative impact but it does not follow through by quantifying the effects or considering the socioeconomic consequences. These qualitative remarks are also removed from the summary and missing from any mitigation consideration.	
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341	***Construction Impacts.*** Construction impacts are acknowledged. Some impacts last for up to 38 months. However, there is no recognition of potential negative consequences on private property, such as loss of serenity, or on the County due to increased road maintenance costs. (See comment LU-3.)	quality in the Fraser and Colorado rivers. The Kremmling WTP is not located on the Colorado River and its WWTP does not discharge to the Colorado River. Hot Sulphur Springs' WTP diversion and WWTP discharge are located on the Colorado River. The original Windy Gap project provided the Town of Hot Sulphur Springs $150,000 to improve their WTP and $270,000 to improve their WWTP. A discussion of impacts to the Hot Sulphur Springs' WTP and WWTP is included in a new subsection in (Section 3.8.2.4 of the FEIS).
342	***Assessed Valuation Losses.*** Land acquisition is required and acknowledged in Alternatives 3, 4 and 5, but there is no mention of the County's loss in assessed valuation as property is removed from private use and purchased by a tax-exempt entity. These are straightforward calculations that were excluded.	339. Water supply in the Fraser River basin would not be affected by the WGFP. See response to Comment No. 337 on Kremmling's and Hot Sulphur Springs' water supply.
343	***Existing Reservoir Degradation.*** Decreases in reservoir water surface area, reservoir water clarity and reservoir water quality are all mentioned has having potential negative impacts on recreation and visitation, but there is no attempt to quantify or follow through in the analysis discussion of socioeconomic effects. There is easily accessible secondary literature that addresses and quantifies these relationships. In addition, there is recent case history of lower water surface area effects on Lake Granby from 2002 and 2003. The analysts did not report any attempts to learn about these localized and relevant impacts. The DEIS concludes that it is unknown whether reduced water clarity, algal growth or chronic toxin concerns in Grand Lake and Shadow Mountain Reservoir will have an impact and so it ignores further consideration. (See comments R-9, R-12, R-15 and R-24.)	340. See response to Comment Nos. 341 through 344. 341. The effects of construction of a reservoir and related facilities construction on private property and businesses is discussed in the Socioeconomics section of the FEIS. With respect to impacts on serenity, possible temporary reductions in property values due to noise, traffic, and disturbances are described in the Socioeconomics section. Noise impacts are discussed in Section 3.17 of the FEIS. 342. See response to Comment No. 404.
344	***Real Estate Values.*** The DEIS acknowledges "concern" about real estate values but provides no quantitative or qualitative description and no mitigation solutions. There are scholarly articles regarding the relationship between water clarity and property values that could have been applied. [1] [2] [3] [4]	343. We were unable to find any information to quantify the incremental impacts on recreation and visitation from changes in water surface area, clarity, and water quality for a high elevation western water storage reservoir where water levels fluctuate widely like Granby Reservoir. The literature referenced in the comments pertains to natural lakes in Maine or reservoirs devoted to multiple purposes in the Southeast United States. Moreover, recreation and visitation during extended droughts when Granby Reservoir would be at low levels also are impacted by fire restrictions, high temperatures (Brad Orr, USFS 2008), or other factors such as sparse upland vegetation that are unrelated to water level. Proposed mitigation measures for the Preferred Alternative in the FEIS (Section 3.25), including modification of prepositioning to maintain higher water levels in Granby Reservoir and nutrient mitigation to offset nutrient loadings to the Three Lakes, would reduce the potential for recreation and socioeconomic impacts.
345	**1.3 IMPACTS EXCLUDED FROM CONSIDERATION** There is a third category of impacts that were not mentioned in the Public Scoping Document and were not referenced in the DEIS, but were mentioned in earlier documents submitted to the Applicant by Grand County. These types of impacts have also been excluded from consideration. They include: - loss of sport fishing lease revenues, due to lower streamflows; - loss of private boating and fishing activities conducted by visitors; - water supply and demand needs in Grand County; - reduced real estate values of resorts, dude ranches and developments that rely on views and streamflow.	
346	There is an implicit assumption that Grand County should endure any environmental impacts with socioeconomic consequences so that <u>future</u> Subdistrict customers can have water. It is unclear why one West Slope county should be burdened so that other Front Range counties can	344. As described in response to Comment No. 343, proposed modifications in prepositioning and nutrient mitigation would reduce the potential for any measurable impacts to real estate values near the Three Lakes that might be attributable to the WGFP.

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346	grow. There is no apparent commitment to water conservation by existing Subdistrict customers to even minimize their need for additional water **1.4 BASELINE CONDITIONS AND PARAMETERS** ***Baseline - Affected Environment.*** *Guidelines for Preparing Economic Analyses*, prepared by the US Environmental Protection Agency, provides principles for describing baseline conditions. "Specification of baseline conditions can have profound influence on the measurement and interpretation of analytical results…The honesty and integrity of the analysis depend on the ability of the analyst to provide well-defined and defensible choices in selection and estimation of baseline conditions. The first step is to select a baseline that is appropriate to the question the analysis is intended the address. The second step is to estimate the values of relevant factors in the selected baseline scenario." [5]	345. Effects were quantified where data on use and impacts are available. Effects of the proposed alternatives on recreation experiences and aesthetics is qualitatively described wherever possible, recognizing that these effects vary widely by individual user. As described in the Aquatic Resources section, projected effects to fish habitat are not anticipated to translate to a loss in fishing opportunities or fishing success. Measures in the Fish and Wildlife Mitigation Plan (FEIS Appendix E) would reduce aquatic resource impacts. Reductions in preferred boating flows and boating days are described in the Recreation and Socioeconomics sections. This analysis focuses primarily on commercial boating, for which baseline use data exists. The DEIS correctly states that hydrological changes are unlikely to adversely impact sport fishing under any alternative, and that changes to the visual quality of the Colorado River would not be discernable to most viewers. It is therefore reasonable to assume that the proposed hydrological changes would not affect private development along the Colorado River. See response to Comment No. 344 regarding impacts on property values.
347	The table below summarizes the types of baseline conditions presented in the DEIS for land use, recreation, visual quality and socioeconomic. In my judgment, the depth of quantitative information provided for land use, visual, recreation and socioeconomic baseline conditions is inadequate because it does not match up with many questions outlined in the *Public Scoping Report* or provided by Grand County in prior written communication. PARAMETERS USED IN THE DEIS TO DESCRIBE THE (BASELINE) AFFECTED ENVIRONMENT IN GRAND COUNTY TOPIC & SECTION / PARAMETER USED Land Use (3.18.1): - amount of state and federal land; - % of land in agriculture; - comment about low-density residential development Recreation (3-19.1): - surface water acres, number of boat ramps, number of marinas; - preferred boating streamflows on selected reaches of the Colorado River; - commercial boating and fishing visitor days on one reach of the Colorado River; - number of fishing guide companies; - number of annual user days for fisherman in 2004 (no location reference) Visual Quality (3.21.1): - analysis focuses only on new reservoirs; - images that are visible from the proposed reservoirs Socioeconomic (3.22.1): - permanent population - countywide and towns; - seasonal population - countywide and Three Lakes Area; - skier visitors and Rocky Mountain National Park visitors; - race & ethnicity; - employment, labor force, top industries (collapsed), agricultural employment; - Per capita income, poverty level, wage rates, household income; - income of agricultural production - new reservoirs; - broad remarks about tourism, countywide; - commercial fishing user days on one reach of the Colorado River; - community services (schools, emergency medical, fire protection, State Patrol) If more rigor had been applied in collecting baseline information that aligned with scoping remarks, then the analyst may have been less likely to ignore potential impacts or dismiss potential impacts as "too difficult to quantify", "unlikely to noticeably affect", "contribute to a REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 5 OF 40	346. See response to Grand County Comment No 38. 347. See response to Comment Nos. 365 and 373. Relevant socioeconomic data are provided in the Socioeconomics section of the FEIS, and qualitative descriptions are included where data are not available.

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347	diminished recreation experience", "minimal" and the like. (See comments R-9, R-12, R-13, R-23 and R-24.) Some examples follow.	
348	– The land use baseline excludes the relationship between the Colorado River and adjacent agricultural properties that depend on the River for irrigation.	348. See response to Bar Lazy J Guest Ranch (Letter No. 1052) Comment No. 3.
349	– The recreation analysis excludes baseline information for any visitor but commercial boating and commercial fishing on one reach of the Colorado River, it excludes all other recreation activities.	349. See response to Comment No. 365.
350	– The visual quality analysis excludes consideration of Lake Granby, Shadow Mountain Reservoir, Grand Lake and Willow Creek Reservoir, and the Colorado River as scenic assets that attract and extend the stay of visitors.	350. All of the water bodies mentioned in the comment are considered in the visual quality analysis. However, the analysis does not attempt to correlate visual quality levels with visitor behavior.
351	– The new information introduced by the socioeconomic analysis excludes consideration of the local economies of the municipalities impacted and property values. The socioeconomic analysis is also hampered by inadequate information in the land use, recreation and visual quality sections.	351. There is not sufficient economic information available to evaluate impacts on particular communities; thus, countywide results are reported. An explanation was added to Section 3.22.2.2 (Method for Effects Analysis) in the FEIS explaining that countywide effects may be concentrated in particular communities or areas within the county. See response to Comment No. 344 regarding property values.
352	***Hydrological Study Period.*** Remarks about water-based recreation are based on changes in streamflow from a 47-year hydrologic period (1950 – 1996). It is curious that the last 11 years of data (1997 – 2007) where the streamflow may have been further reduced by man-made factors, including the (original) Windy Gap Project, is excluded from the baseline data set. If more recent information were included and this expanded information set baseline streamflow conditions lower, then the incidence of sub-par streamflow might increase. This condition suggests that any impact findings that rely on the 1947 to 1996 streamflow information might be understated. (See comments R-17 and R-21.)	352. See response to Comment No. 7.
353	***Water Measurement Parameter***. The information on water hydrology that is used in the land use, visual impact and socio-economic components of the DEIS is expressed in average monthly figures, but for the discussion regarding commercial rafting and kayaking. In the one place were daily flows were applied in the analysis, the DEIS found environmental effects and quantified their socioeconomic consequences. Most environmental impacts and socioeconomic consequences simply do not occur in average monthly increments. The frequency, duration and magnitude of hydrologic changes and related temperature effects impact flushing flows, recreation usage, agricultural usage for irrigation, fishing, boating, scenic viewing and many more types of impacts that have related socioeconomic consequences. The intricate relationships between water flow, water quality, changes in the magnitude of flow, temperature and temperature changes and timing are vitally important to Grand County. Because in most cases, ERO reports only average monthly statistics, many environmental REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 6 OF 40	353. The analysis of resource impacts used the best hydrologic data available to access impacts. For some resources, such as aquatics, recreation, and water quality, daily hydrologic data were used; and for other resources, such as lake recreation, average monthly reservoir content was a reasonable measure of changes in lake storage. Table 3-4 was added to the FEIS to indicate how hydrologic data was used for resource evaluations.

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353	impacts with potential related socioeconomic effects in Grand County might be unreported or understated.	354. While Reclamation NEPA policy and guidance uses a comparison of the action alternatives with the No Action Alternative, the FEIS provides data for alternatives comparison of action and no action alternatives with existing conditions. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connections to C-BT facilities. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is reasonable action for the City of Longmont, and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts, including increased Windy Gap diversions under the No Action Alternative come from WGFP Participants increasing their deliveries, which they can currently do without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative. The NEPA process does not isolate and evaluate separately the effects of previous actions, except to the extent they are part of the cumulative effects. 355. Direct land use effects would be limited to the locations of new constructed facilities, and associated transportation corridors. The effects of construction of a reservoir and related facilities construction on private property and businesses are discussed in the Socioeconomics section of the FEIS. See response to Comment Nos. 343 through 345 regarding indirect effects to lakeshore or riverbank properties, or Comment No. 328 regarding agricultural water uses. 356. See response to Comment No. 31.
354	**1.5 DEFINITION OF "NO ACTION" ALTERNATIVE** In some instances, the DEIS evaluates impacts against the No Action Alternative which already includes substantial impacts relative to Existing Conditions; in other instances, the analysis compares alternatives against Existing Conditions. With the WGFP, the action alternatives are proposed by the same or a related organization that created the No Action Alternative. While the No Action Alternative may (or may not) meet the required regulatory definition, it is not clear how it can be a "no action" alternative in the common sense definition of "no action." The land use, visual, recreation and socioeconomic components of the DEIS provide no clear delineation of the original Windy Gap project as part of Existing Conditions, the No Action Alternative, the Proposed Action Alternative, other action alternatives, or cumulative effects. The "existing" hydrologic conditions correspond to a historic study period from 1950 to 1996 that includes some original Windy Gap effects and excludes others. As described in the DEIS, the WGFP places incremental environmental burdens on Grand County, relative to the original Windy Gap project. In my judgment, it is of heightened importance that the (original) Windy Gap project impacts be clearly and quantitatively singled out throughout the DEIS, whether or not compensatory mitigation was accomplished.	
	1.6 LAND USE IMPACTS (DEIS SECTION 3.18) In the DEIS, land use includes land ownership, land use and transportation.	
355	***Narrow List of Impacts.*** The land use analysis only addresses impacts that are related to construction of new infrastructure. "None of the alternatives would directly affect land use at locations outside of those needed to support project facilities." (See comment LU-1.)	
356	***Method.*** The DEIS states that "effects to existing land uses were evaluated based on anticipated physical changes at new reservoir sites." (page 3-223) Also, it states that no new facilities would be constructed along the Colorado River that would affect existing land ownership and land uses. Accordingly, the DEIS identifies no land use impacts in Grand County for No Action Alternative or Proposed Alternative because there are no new reservoir sites and no new facilities along the Colorado River. That is, no hard construction. There is no acknowledgement of the relationship between water and land use. In my opinion, there are substantial and potentially negative relationships between WGFP water impacts and land use including impacts to agriculture through irrigation ditch failures and impacts to REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 7 OF 40	

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356	development directly dependent on river and reservoir and US 40 views and usage. Also, the *Public Scoping Report* specifically identifies potential impacts to the Grand Lake shoreline and property rights from an alluvial buildup on the Grand Lake side of the outlet canal. Both scholarly secondary research and anecdotal illustrative information is available to describe these relationships. (See comments LU-1 and LU-2.)	
357	***Transportation.*** Alternatives 3 and 4 have a construction impact in Grand County lasting 38 months; congestion and traffic delays are acknowledged. Yet, the DEIS contains no related effects on Grand County or on adjacent land uses. (See comment LU-3.)	357. The potential transportation impacts to adjacent lands are described in the Land Use section, including the effects of facility construction, and potential long-term traffic increases if recreation facilities were developed.
358	***Land Ownership Changes***. The DEIS estimates land acquisition needs for Alternatives 3, 4 and 5 of 300 to 500 acres and notes a loss in agricultural production. Land ownership changes from cumulative effects would be substantially greater; 1,590 acres for Alternative 3 and 4,770 acres for alternatives 4 and 5. The derivation of these figures was not provided.	358. The cumulative loss of agricultural and undeveloped land due to planned future developments near the Jasper East and Rockwell Reservoir sites is discussed in Land Use, Section 3.18. Section 2.8.2.2 describes reasonably foreseeable future land use near alternative reservoir sites. Construction of major reservoir facilities and large development projects in Grand County are subject to Special Use Review and other land use regulations, which could affect the amount or character of development.
359	There is no discussion of potential effects other than "potential loss in additional agricultural land and undeveloped land." Only 28% of Grand County land is in private ownership (page 3-216). The loss of privately held land has lasting negative impacts on the School District, the County and other jurisdictions that rely on property tax revenues.	359. See response to Comment No. 404.
360	***Agriculture.*** An analysis of effects on agriculture is missing from the DEIS, but for mention of some loss of irrigated pasture where reservoirs would be constructed. With the WGFP, average monthly streamflow decreases of up to 6% in the No Action Alternative and up to 11% in the Proposed Action Alternative are anticipated. With cumulative effects, average monthly streamflow reductions of 15% in the No Action Alternative and between 18% and 21% in the action alternatives are anticipated. There is no mention of related impacts to irrigation ditch operations. Our interviews with a rancher and former water commissioner [6] and supplemented by the *Grand County Stream Management Plan – Draft Report* [7] suggest that additional streamflow reductions would further compromise the agricultural irrigation pump intake system perhaps to failure in some situations. Significant drops in streamflow and related increases in temperature hamper or prohibit irrigation activity either because there is inadequate pressure or because dead fish and algae clog the irrigation gate network. All alternatives exacerbate this marginal condition. Lower streamflow and additional irrigation ditch structure failures is a relationship that the Subdistrict understands. The Municipal Subdistrict paid $500,000 in mitigation to upgrade diversion structures for ranches below the Colorado River as part of the original construction of Windy Gap Reservoir. REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 8 OF 40	360. See response to Comment No. 348.

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361	In addition, streamflow reductions may comprise the quality of the Colorado River for fishing, which is a supplemental source of income to ranchers who lease their property to individuals and fishing guides. (See comments LU-2 and LU-4.)	361. See response to Comment No. 345.
362	***Construction Impacts.*** The DEIS acknowledges construction impacts of up to 38 months and related construction traffic, periodic vehicle delays and congestion at intersections. There is no mention of related negative impacts on adjacent land uses for Alternatives 3, 4 and 5. (See comment LU-3.)	362. See response to Comment No. 341.
363	***Real Estate Development Impacts.*** The DEIS excludes any consideration of the relationship of surface water reductions to Lake Granby and adjacent real estate development or water clarity and quality reductions in Grand Lake and Shadow Mountain Reservoir and adjacent real estate.	363. See response to Comment Nos. 343 and 344 regarding impacts of Granby Reservoir water levels on property values, water clarity, and water quality. As described in the Recreation section, none of the alternatives would affect water levels at Grand Lake. See response to Comment No. 329 regarding water quality. Granby Reservoir water levels have fluctuated widely in the past and would continue to do so in the future. It is reasonable to assume that a 6 percent reduction in surface area in a water storage reservoir that regularly fluctuates under existing conditions would not noticeably affect recreation use or the quality of the recreation experience. Additional information has been added to Section 3.19.2.4 of the FEIS to better correlate severe drawdowns during consecutive dry years with reservoir surface area. Dry years and low water levels have occurred in the past and would continue to occur in the future. The mitigation measures proposed by the Subdistrict would maintain higher water levels in Granby Reservoir and offset nutrient loading to the Three Lakes, minimizing potential impacts to nearby real estate values.
364	***Cumulative Impacts.*** The DEIS states that cumulative impacts "would not have any direct incremental effect on land ownership or use…" (page 3-229) In our judgment, cumulative effects exacerbate streamflow decreases and impact adjacent ranchers through the added potential for irrigation ditch structure failure and reduced opportunity for fishing lease revenues.	364. See response to Comment No. 345.
	1.7 RECREATION (DEIS SECTION 3.19)	
365	***Narrow Definition of Recreation.*** There is a general bias in the DEIS that if recreation is not active recreation that is accessible by the general public, then it merits no consideration or analysis. The only recreation activities quantified are commercial kayaking and commercial rafting on selected reaches of the Colorado River and related camping on one reach of the Colorado River. This is narrow and inadequate. While commercial kayaking and commercial rafting in selected reaches of the Colorado River are a few core summertime visitor activities, there are other more significant recreation activities that bolster the Grand County economy in the summer that are likely impacted by the WGFP. These include: - commercial and private fishing in locations other than Reach 5 of the Colorado River; - other commercial and private boating by visitors in reservoirs; - camping in locations other than Reach 5 of the Colorado River, and - passive visitor enjoyment of the US 40 corridor, a national scenic byway, the Colorado River, Grand Lake, Shadow Mountain Reservoir, and Lake Granby. Each of these affected recreation activities have related impacts on lodging, restaurant sales, recreation equipment rental providers and guides or outfitters, and other incidental purchases. In the summer, many out-of-state visitors come to Grand County because of Rocky Mountain National Park, a national destination, but they linger because of the fishing, boating, and scenic beauty that Grand County currently offers. The local economy relies on this recreation REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 9 OF 40	365. See response to Comment No. 30.

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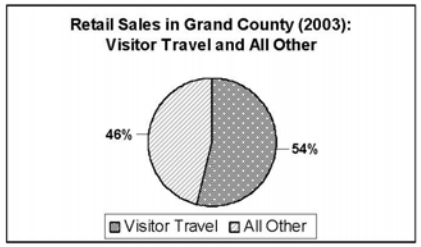
365	relationship. The water resources that are compromised by the WGFP are necessary components of the County's scenic beauty and tranquility and its more passive recreation venues. (See comments R-1, R-2, R-6 to R-8, R-11.)	

The Tourism Sector in Grand County. Tourism has played a pivotal role throughout Grand County's history. In the 1870s, rustic "resorts" were built in Hot Sulphur Springs and Grand Lake. These resorts attracted fisherman and hunters. In the early 1900s, tourism activity broadened as Grand Lake emerged as a recreation respite for affluent families escaping the summer heat. Fishing and boating were the cornerstone recreation activities.



Gradually, tourism has grown to become the primary economic driver in Grand County. Unlike other more urban environments, every tourist activity in Grand County relies directly on the natural flow of water.

The *Economic Impact of Travel on Colorado* report [8] estimates that in Grand County, the direct impact of spending by visitors equaled $169.7 million in 2003. These expenditures included only spending on travel, lodging, food and beverages, recreation and other visitor-related commodities. It understates the actual impact on the County's economy because it included no secondary (indirect and induced) impacts such as visitor-related construction activity and business services. This volume of spending comprised 54% of total retail expenditures in the County.[9] In addition, visitors paid $7.1 million in local government taxes, which included lodging, auto rental, and sales tax.

As illustrated in the graph to the right, retail sales in July, August and September (the 3rd quarter), for Grand County excluding Winter Park, are 16% to 40% higher than any other quarter. This is the height of the tourism season for the portion of Grand County most impacted by the WGFP.[10] Local businesses as well as municipal governments are highly dependent on retail sales.

As described above August ranks second and July ranks third in retail sales activity. This summer activity is attributable to visitors, may of whom come to see the Rocky Mountain

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National Park (2.9 visitors in 2005) but linger in Grand County to participate in fishing, rafting, kayaking, boating, mountain biking, hiking or site-seeing.

US 40 – Grand County's Tourism Corridor. In 2005, the 80-mile stretch of US 40 from Grand Lake through Granby, Hot Sulpher Springs and Kremmling to State Bridge, known as the Colorado River Headwaters, was designated by the US Secretary of Transportation as a National Scenic Byway. It is one of only ten "America's Byways" in Colorado. It is also one of 19 Colorado Scenic and Historic Byways. The Colorado River and US 40 are inextricably linked from the visitor's perspective. Travelers from throughout the country choose to visit Colorado in the summer months because of this prestigious designation.

Preferred Streamflows and Recreation. The table below compares Colorado River streamflow recommendations for recreation contained in the WGFP DEIS with recommendations contained in the *Draft Grand County Stream Management Plan – Phase 2.*[11]

COMPARISON OF COLORADO RIVER STREAMFLOW RECOMMENDATIONS FOR RECREATION	
WGFP DEIS	DRAFT GRAND COUNTY STREAM MANAGEMENT PLAN
COLORADO RIVER – WINDY GAP TO WILLIAMS FORK RIVER (BYERS CANYON) – GOLD MEDAL FISHERY	
REACH #2 Angling: No data Kayaking: > 400 cfs	CR-4 Angling: Minimum, 60 cfs; Optimum, 200-300 cfs Kayaking: Minimum, 300 cfs; Optimum, 1,000 - 1600 cfs
COLORADO RIVER – WILLIAMS FORK RIVER TO KREMMLING – GOLD MEDAL FISHERY	
REACH #3: Angling: No data	CR-5: Angling: Optimum, 200 - 300 cfs
COLORADO RIVER – KREMMLING TO PUMPHOUSE (GORE CANYON)	
REACH #4 Angling: No Data Rafting: 850 to 1,250 cfs Kayaking: Min. Preferred, 400 - 2,200 cfs Preferred, 1,100 – 2,200 cfs	CR-6: (ALSO GORE CANYON IN CR-7) Angling: Optimum – 200 to 300 cfs Kayaking: Minimum, 900 cfs; Optimum, 1,200 - 1,400 cfs Rafting: Minimum, 1,000 cfs; Optimum, 1,200- 1,800 cfs
COLORADO RIVER – PUMPHOUSE TO STATE BRIDGE (PUMPHOUSE)	
REACH #5: Angling: No data Rafting & Kayaking: Min. Preferred, 400 - 3,000 cfs Rafting: Preferred, 2,000 – 3,000 cfs	CR-7 (Pumphouse) Angling: Minimum, 450 cfs; Optimum, 1,000 cfs Kayaking: Minimum, 500 cfs; Optimum, 600 -1,000 cfs Rafting: Minimum, 700 cfs; Optimum, 900 - 1,300 cfs
Sources: WGFP DEIS, Chapter 3, Affected Environment; Draft Grand County Management Plan information is from the "Reach Summary" section.	

366 The DEIS provides no streamflow figures for angling for any portion of the Colorado River, even though several sections have a Gold Medal Fishery designation. The DEIS flow recommendations for kayaking and rafting are lower or broader than the *Draft Grand County Stream Management Plan-Phase 2* recommendations in most cases. If the *Draft Stream*

366. Based on the results of the Aquatic Resources analysis and proposed temperature, nutrient, and other mitigation (FEIS Section 3.25), the WGFP is not expected to adversely affect the Colorado River fishery. It is not clear from the Grand County SMP how angling flows were derived.

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366	*Management Plan* recommendations are more valid, then the magnitude of impacts is greater and the figures should be adjusted. The *Draft Stream Management Plan* also contains recommendations for environmental flows, and flushing flows and reports CWCG minimum flow requirement. These are excluded from this analysis of recreation impacts. ***Senate Document 80.*** Senate Document 80, enacted in 1937, allowed the construction of the Colorado-Big Thompson Project. This Document states, "The project must be operated in such a manner as to most nearly affect the following primary purposes … "to preserve the fishing and recreation facilities and scenic attractions of Grand Lake, the Colorado River and the Rocky Mountain National Park.[12] This suggests that an added level of analysis and scrutiny is appropriate when considering the recreation effects of the WGFP, which is enabled by Senate Document 80. In my judgment, the analysis is too narrowly focused and dismissive of many recreation impacts that are itemized throughout this memorandum. ***Fishing in Grand County.*** A significant portion of Grand County's summer and fall tourism is based on fishing. While fishing is one of several visitor attractions in East Grand County, it is an economic lifeline to West Grand County. Tom Clark, Mayor of Kremmling, explains that fishing is fundamental part of the local cultural heritage and is a key factor in retaining the local rural atmosphere. While exact figures are not available, Mayor Clark believes that fishing is a substantial part of the local West Grand County economy.[13] Henry Kirwin, co-owner of Mo Henry's Trout Shop, reports that his 500 to 1,000 fishing guide clients may come to Grand County to fish its Gold Medal streams, but often extend their stay to enjoy other active and passive recreation opportunities. Fishing is a destination purpose for many summer visitors. The Colorado Division of Wildlife recently released a report[14] that stated the direct expenditures of anglers averaged $67 per activity day for Colorado residents and $118 per activity day for non-Colorado residents. With the secondary impact of dollars re-spent in the economy, the total economic impacts are $118 per activity day for Colorado residents and $208 per activity day for non-Colorado residents. The DEIS estimates expenditures for fishing per user day at $53 (page 3-275). This low expenditure figure, plus the exclusion of all private fishing activity significantly underestimates the contribution of fishing to the local economy. The DEIS concludes that there are no measurable impacts on fishing in Grand County because the impact on fish habitats will not adversely impact sports fishing. This analysis challenges the DEIS conclusion that fishing is a singular function of fish habitat. The DEIS provides no evidence that fishing is a singular function of fish habitat. (See comment R-23.) The decision to fish in a stream or river in Grand County relates directly to the anticipated quality and success of the fishing experience, which is a function of many factors, including streamflows, water temperature, water clarity including the absence of slippery moss and algae, the scenic environment of the river corridor, and the expectation of success. Currently, due the existing compromised condition of some streams in Grand County, fishing guides, local fishing REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 12 OF 40	The Grand County SMP was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS such as reductions in nutrient loadings to the Colorado River and Three Lakes and measures develop in the Fish and Wildlife Mitigation Plan (FEIS Appendix E) would help meet some of the goals of the SMP. After review of the Grand County SMP and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs at Pumphouse. The FEIS includes these changes. 367. See response to Comment No. 10. 368. There are no anticipated adverse impacts to fishing in Grand County, as a result of the WGFP, under any of the alternatives (see response to Comment Nos. 345, 365, and 366). Thus, there would not be any economic impacts from a loss of fishing. In terms of the affected environment, the 2008 BBC estimates for the economic impacts of fishing is included in Section 3.22.1.7 of the FEIS. The Subdistrict in cooperation with the Colorado Division of Parks and Wildlife developed a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2 to address stream temperature and aquatic habitat impacts. Nutrient mitigation measures also would improve water quality in the Fraser River, Willow Creek, and Colorado River.
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368	experts, and retailers report[15] that they are guarded in recommending some stream locations to fish and, in the summer months, also encourage anglers to use a temperature gauge and avoid fishing in the afternoon when water temperatures are higher. The WGFP will further erode the quality of the Colorado River and its tributaries. The *Grand County Draft Stream Management Plan - Phase 2* [16] describes a number of specific existing conditions where the quality of fishing is threatened by whirling disease and/or elevated temperatures. It seems unreasonable to conclude without any evidence that this condition will not reducing.	369. The analysis of potential effects on Granby Reservoir and other reservoirs focuses on the magnitude of impact (change in water levels) and the effect on boating accessibility (boat ramp elevations). Specific visitor surveys to ascertain the behavioral impact of these changes was not pursued because of: a) the relatively small anticipated impacts on reservoir recreation in most years, and b) the likely finding that most users prefer higher water levels is intuitive and is supported by existing studies (such as Smith and Hill 2000). In the absence of existing visitor use data at these reservoirs, additional qualitative information would not be sufficient to draw quantitative conclusions about the potential changes to the number of users/visitors.
369	***Method to Assess Water Resources and Recreation Effects.*** The *Recreation Resources Technical Report* (ERO Resources, 7/08, p 26) cited one analysis on the Arkansas River Basin (Smith and Hill 2000) to conclude that "water levels in reservoirs do not generally influence people's behavior patterns and it would be speculative to attempt to draw such conclusions about visitor use patterns based on reservoir elevations. However, Smith and Hill showed a strong correlation between water surface area available for recreation and user satisfaction." The DEIS estimates reductions in water surface area at Lake Granby but makes no attempt to quantify the recreation visitor impact. There is no follow through in the socioeconomic section. In addition, the authors appear to have made no attempt to develop a local analysis in Grand County through survey research or any other technique. There is secondary research available plus directly relevant and recent experience with low water levels in the Lake Granby that should be pursued. [17] [18]	As a result of operation of the C-BT Project, Granby Reservoir water levels have fluctuated widely in the past and would continue to do so in the future. In addition to low water levels, campfire restrictions in the Recreation Area are a deterrent for visitors, which is often the case when water levels are down in dry periods. Excessive rain or extreme temperatures during the summer season also may deter visitors from Granby Reservoir (Brad Orr, USFS 2008; see references in Recreation Report). Granby Reservoir was constructed as a water supply reservoir and, therefore, is operated to meet water demands rather than optimize for recreation use. Modified prepositioning would reduce Granby Reservoir drawdowns from those described in the DEIS, particularly during dry years. See Section 3.5.4 in the FEIS.
370	***Fishing in the Colorado River – Gold Medal Fishery And Wild Trout Water Designations.*** A 20-mile segment of the Colorado River from Windy Gap Reservoir to Troublesome Creek and up Troublesome Creek (Reaches 2 and 3) has a "Gold Medal Fishery" designation from the Colorado Wildlife Commission. This designation for outstanding trout fishing is bestowed sparingly; only 168 miles (1.9%) of the 9,000 miles of trout streams in Colorado have earned this designation. The reputation of the Gold Medal Fishery designation draws fisherman nationally and internationally throughout the summer, according to Dan Murphy [19], owner of the Fishing Hole in Kremmling. The DEIS acknowledges this designation but does not discuss whether the WGFP or the cumulative effects would threaten this designation. This neglect lessens the significance of potential impacts. The Colorado Division of Wildlife also designates certain mountain streams and some high lakes as "wild trout waters." These designations are reserved only for waters where the habitat is capable of sustaining a wild trout population and the primary fishery management objective is to maintain a wild trout population and fishery. [20] Further degradation to the Colorado River from the WGFP or the cumulative effects would threaten this designation. (See comments R-3 and R-4.)	370. The Gold Medal designation requires that waters with this designation meet the minimum criteria of a standing stock of 60 pounds of trout per acre and a minimum of 12 quality trout (>14 inches long) per acre. The current population estimates in the Colorado River below Windy Gap are 131 pounds per acre and 51 fish greater than 14 inches. Many factors can affect fish density and size including habitat and food resources. Based on the results of the Aquatic Resource analysis, food resources are not expected to change as a result of the WGFP, and habitat would decrease in some years. Another factor that can affect fish populations more rapidly is fishery management, in particular harvest regulations. CDOW studies during the mid- to late-1970s showed that restricting harvest limits or terminal tackle could result in large increases to fish populations in Colorado rivers. The project proponent or Reclamation do not specify fishery management for the Colorado River or the reservoirs. We have assumed that CDOW management of those waters would be consistent with management in the recent past. Therefore, we do not expect that the WGFP would alter the Gold Medal designation. See aquatic resource mitigation measures in Sections 3.8.4 and 3.9.4 of the FEIS.
371	***Wild and Scenic River Designation.*** All reaches of the Colorado River in Grand County are under consideration by the Bureau of Land Management (BLM) for "Wild and Scenic River	

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371	Designation." The DEIS specifically states that it excludes consideration of whether the WGFP would impact BLM's determination of Wild and Scenic Designation. This is a potentially significant designation that could generate substantial visitor revenues for Grand County. While not usurping BLM's analysis, the DEIS should compare eligibility requirements against anticipated impacts of the WGFP and the cumulative effects. (See comment R-10.)	371. See response to Comment No. 45.
372	***Land-Based Recreation.*** The DEIS states that effects from water-based recreation would have a limited direct impact on land-based recreation, such as camping, picnicking, mountain biking, and hiking. This statement is unsubstantiated. There is no effort to determine what portion of visitors come to Grand County for a water-based recreation experience, such as boating or fishing, and also participate in complimentary land-based activities. If the water-based recreation opportunity is constrained, it seems reasonable that land-based recreation is also impacted.	372. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report and in the section on Effects Common to All Alternatives in the EIS. No data currently exist regarding the relationship between water-based activities and land-based recreation. Considering the extensive recreational opportunities available in Grand County and the broad cross section of visitors and users, the level of study that would be needed to determine the relationship between activities is beyond what is necessary to describe the impacts of anticipated hydrological changes on river and reservoir recreation. The direct and secondary economic impacts of boating and camping activities are described in detail in Section 3.22, Socioeconomics of the FEIS. Mitigation measures that modify prepositioning operations to maintain higher water levels in Granby Reservoir, particularly during dry years, would reduce the potential for negative impacts to recreation activities as a result of the WGFP. Water quality mitigation measures that reduce nutrient loading in the Three Lakes also would contribute to maintaining aesthetic recreation values.
373	***Qualitative Remarks and Remarks about Uncertainty***. In many instances, the recreation section identifies a potential impact but marginalizes the impact using qualitative words such as "difficult to quantify", "too speculative", "may contribute to a diminished recreation experience", "unlikely to noticeably affect", etc. These statements are unsubstantiated. No criteria appear to have been applied to determine whether an impact is potentially significant. In each instance, there is no attempt to quantify the impact in this section, no explanation as to why quantification is not possible, no follow-up attempt to analyze the socioeconomic implications, no consideration of a multiplier effect, and no reference in the summary chapter. Stated simply, once stated, all qualitative remarks disappear from further consideration in the DEIS. Ignoring these impacts substantially understates the recreation effects and related socioeconomic implications. The US Environmental Protection Agency *Guidelines for Preparing Economic Analyses*[21], published in 2000, and the draft *Guidelines*[22], prepared in 2008, provide expert guidance on how to treat uncertainty and qualitative findings. Some illustrative statements that highlight the importance of presenting qualitative information and information that may be uncertain are cited below. - "The issue for the analyst is not how to avoid uncertainty, but how to account for it and present useful conclusions to those making policy decisions."[23] The *Guidelines* provide several alternative analytical tools with which to present uncertainty, including sensitivity analyses, "switch points" and ways to reduce the range of uncertainty. - "Highlighting Non-monetized and Unquantified Effects. Economic analyses should present and highlight non-monetized effects when these are important for policy decisions. Reasons why these consequences cannot be valued in monetary terms are important to communicate as well." [24] REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 14 OF 40	373. See response to Comment No. 30.

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374	These quotes are from the 2000 document. The draft 2008 document is even more explicit on these points but EPA does not allow cites or quotes from this later document since it is still in external review draft format. The dismissive style of the DEIS is inconsistent with EPA *Guidelines* and renders the impact analysis questionable. (See comments R-9, R-12 to R-15, and R-17.) ***Recreation at Reservoirs.*** The Lake Granby, Shadow Mountain Reservoir and Grand Lake are centerpieces of the local Grand County economy in the Three Lakes Area. This is evidenced by the number of recreation-oriented and visitor-oriented businesses and related employment, the flow of retail sales, lodging occupancy and other statistics in central Grand County and the Three Lakes area. The DEIS reports anticipated decreases in water surface area, increases in exposed shoreline, and impacts on boat ramp access. It reports potential adverse boating, camping, hiking and shoreline activities during low water levels but concludes that any impacts are difficult to quantify and so no effort is made to quantify and potential socioeconomic implications are ignored. It reports a "concern" about reduced water clarity and algal growth in Grand Lake and Shadow Mountain Reservoir that "may contribute to a diminished recreation experience"(page 3-236), but it does not attempt to quantify this effect, describe potential socioeconomic implications, mention the possibility in the summary chapter, or provide mitigation solutions. The table below consolidates illustrative remarks from the DEIS about recreation impacts in the Three Lakes area. SUMMARY OF RECREATION EFFECTS ON EXISTING GRAND COUNTY RESERVOIRS FROM WGFP OR CUMULATIVE EFFECTS - DEIS | | Lake Granby | Willow Creek Reservoir | Shadow Mountain Reservoir | Grand Lake | |---|---|---|---|---| | Boating | "unlikely to noticeably affect" | None | No mention | No mention | | Fishing | "not substantially affect shoreline fishing" | None | No effect | No effect | | Camping | "could decrease in during low water levels" | None | No mention | No mention | | Visitor Experience | "may reduce quality of visitor experience" | None | "reduced water clarity may contribute to a diminished recreation experience" | "reduced water clarity may contribute to a diminished recreation experience" | Source: DEIS: p 3-237, 3-236, 3-246 There is scholarly research regarding the relationship between lakes and reservoirs and recreation.[25] [26] In addition, some straightforward research in Grand County to first quantify baseline summer recreation in the Three Lakes area and second to measure the impacts of summer recreation in the recent low water years (2002 and 2003) would provide pertinent data. REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 15 OF 40	374. There would be no change to water levels in Grand Lake or Shadow Mountain Reservoir; therefore, the economic activities focused on Granby Reservoir. The average reduction of 3 to 6 percent in summer surface area of Granby Reservoir is not anticipated to result in large impacts for a water storage reservoir that regularly fluctuates under existing conditions. Dry years and low water levels have occurred in the past and would continue to occur in the future. The modified prepositioning mitigation measures proposed by the Subdistrict would reduce Granby Reservoir water level fluctuations (FEIS Section 3.5.4). The existing economy around the Three Lakes system has developed despite the operation of the C-BT Project and extreme fluctuations in Granby Reservoir because of operation of the C-BT Project. The dominant effect on water levels at Granby will continue to be the C-BT Project. Operation of the WGFP will have an incrementally small effect on Granby water levels. The literature referenced in the comments pertains to natural lakes in Maine or reservoirs devoted to multiple purposes in the Southeast United States. We were unable to find any information to quantify the incremental impacts on recreation and visitation from changes in water surface area, clarity, and water quality for a high elevation western water storage reservoir where water levels fluctuate widely, such as Granby Reservoir. Similarly, we are not aware of readily available information on the impacts specifically related to low Granby Reservoir water levels in 2002 and 2003. During drought conditions like 2002, water levels are expected to be lower from reduced runoff and as water users tap available storage to meet needs. That is the function of a water supply reservoir. Windy Gap did not pump any water into Granby Reservoir in 2002 because of its junior water rights. However, Windy Gap pumped more than 64,000 AF in 2003, which contributed to higher lake water levels.

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374	Ignoring the relationship between the size, access, health and beauty of Lake Granby, Shadow Mountain Reservoir and Grand Lake and recreation activity is a serious flaw, in my judgment, that minimizes the impacts of the WGFP.	
375	The DEIS excludes consideration of Senate Document 80 [27] requirements which protect Grand Lake and the Colorado River, including specific considerations about recreation, aesthetics and fish.	375. See response to Comment Nos. 10-14,
376	***Lake Granby – Boat Ramp Access – Average Year***. The DEIS reports in an average year under the No Action and all action alternatives, one of the three boat ramps on Lake Granby may be inaccessible for one month (May) due to the WGFP. With cumulative effects, one or two boat ramps may be inaccessible for one month (May). See the summary table below.	376. See response to U.S. Forest Service (Letter No. 1127) Comment No. 12.
	LAKE GRANBY – BOAT RAMP ACCESS – AVERAGE YEAR (MEASURED IN # OF RAMPS)	
	Alternative / Windy Gap Firming Project: Boat Ramps Accessible / Windy Gap Firming Project: % Change from Existing Conditions / Cumulative Effects: Boat Ramps Accessible / Cumulative Effects: % Change from Existing Conditions	
	Existing Conditions: 3 / / 3 /
	No Action: 2 / -33% / 2 / -33%
	Proposed Action: 2 / -33% / 1 / -67%
	Alternatives 3-5: 2 / -33% / 1 / -67%
	Note: Accessibility differs by month in some scenarios. Sources: DEIS pages 3-236 and 3-246	
	The analysis of this condition concludes that under either the WGFP analysis or the cumulative effects analysis "it is unlikely to noticeably affect recreation use or the quality of the recreation experience under any alternative. " (page 3-237; also see 3-247) It is not clear how a 33% to 67% reduction in access to boat ramps would not affect recreation use.	
	At the end of May each year, the Granby Chamber of Commerce hosts "The Granby Fishing Contest", a festival that celebrates the beginning of the fishing season in Lake Granby. If this event presents a poor aesthetic for fishing, then the local economy will be compromised throughout the summer as anglers select other places to fish.	
	In addition to three public boat ramps, there are two private marinas that function in Lake Granby. (The DEIS notes this, page 3-230.) These private marinas would also experience a reduction in users from WGFP impacts. This private sector impact is ignored in the analysis. Ignoring private sector impacts is a consistent error throughout the DEIS, in my judgment. (See comments R-16 and R-24.)	
377	***Lake Granby – Boat Ramp Access – Dry Year***. The DEIS reports that in a dry year, under the No Action and all action Alternatives, all boat ramps on Lake Granby may be inaccessible for one or two months due to the WGFP. In a dry year, under cumulative effects, no data was provided in the DEIS. (See summary table below.)	377. As described in the Recreation Resources Technical Report, dry year reductions in lake elevations under the Proposed Action would affect use of the Arapaho Bay boat ramp and the Stillwater boat ramp in September. Modified prepositioning efforts would limit impacts to the Arapaho Bay boat ramp during successive dry years. The FEIS was changed to clarify boat ramp access during dry years, and to better describe the frequency and impacts of consecutive dry years on boating opportunities for existing conditions and the Proposed Action, along with the benefits of modified prepositioning efforts.
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377		378. It is reasonable to assume that a 6 to 7 percent reduction in surface area in a water storage reservoir that regularly fluctuates under existing conditions would not noticeably affect recreation use or the quality of the recreation experience, particularly when compared to the infrequent major reductions (up to 20 percent) that have been known to occur during consecutive dry years. See response to Comment Nos. 352 and 353 regarding the rationale for the hydrological model study period and the use of monthly values. See also response to Comment No. 377. See Sections 3.5.4 and 3.19.4 in the FEIS on mitigation to maintain higher Granby Reservoir water levels.
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LAKE GRANBY – BOAT RAMP ACCESS – DRY (MEASURED IN # OF RAMPS)

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Boat Ramps Accessible	% Change from Existing Conditions	Boat Ramps Accessible	% Change from Existing Conditions
Existing Conditions	3		3	
No Action	0	-100%	?	?
Proposed Action	0	-100%	?	?
Alternatives 3-5	0	-100%	?	?

Note: Accessibility differs by month in some scenarios.
Sources: DEIS pages 3-236, 3-237, 3-246, 3-247

The DEIS acknowledges that "lower water levels in dry years "may reduce the quality of the recreation experience or "could reduce the quality of the recreation experience…" This appears to be a significant understatement since all boat ramps would be inaccessible in one or more summer months. (See Comments R-16 and R-24.)

Lake Granby – Water Surface Area Effects – Average Year. The DEIS reports that in an average water year, the WGFP would trigger a reduction in surface water area of up to 6% under the Proposed Action and up to 7% under the Proposed Action – Cumulative Effects.

LAKE GRANBY – SURFACE AREA CHANGES – AVERAGE YEAR (MEASURED IN ACRES)

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Surface Area (May)	% Change from Existing Conditions	Surface Area (May)	% Change from Existing Conditions
Existing Conditions	5,970		5,970	
No Action	-140 or 5,830	-2%	-190 or 5,780	-3%
Proposed Action	-351 or 5,619	-6%	-431 or 5,539	-7%
Alternatives 3-5	-167 or 5,803	-	-239 or 5,731	-4%

Sources: DEIS, Table 3-116, p 3-236 and p 3-246

- The analysis states that these "relatively small" reductions in boatable area are unlikely to noticeably affect recreation use or quality. (p 3-237) This remark might be based on one personal interview with Orr, in 2008. There is ample secondary research that provides quantitative relationships between reductions in surface areas and recreation.

- This data is presented in average monthly statistics. There is no information on the volume of daily fluctuations within the month. Visitors and recreation users view and use the reservoir on a daily basis. Average monthly statistics might mask the more realistic impacts.

- The derivation of the Existing Conditions figure is uncertain. It might be based on an historic time period (1950 to 1996) that excludes two of the driest years in recent history. If so, then the Existing Conditions figure may be too low and the related impacts understated.

There is historic data available to discern the relationship between of a reduction of water surface area, visitation and recreation, since Lake Granby experienced this effect in 2002 and

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378	2003. It appears that no attempt was made to assemble this information. Our recent interviews with the local business community who experienced these low water years points out that there was a direct relationship. [28] "As the Granby Chamber of Commerce, a community dependent on fishing and boating as one of our major draws to the area, we had to spend a lot of additional time and marketing dollars to convince people that the low water would not detract from their visit. The low water levels did stop people from coming up for the views – dirt where water should be was not always attractive to tourists." [29]	
379	***Lake Granby – Water Surface Area Effects – Dry Year.*** In a dry year, the DEIS states that the WGFP impacts could cause decreases of up to 18 feet under No Action and up to 23 feet under the Proposed Action but provides no information that enables the reviewer to compare these conditions with Existing Conditions. It provides no similar information about cumulative effects. This is an inadequate presentation of potentially significant information that provides the reviewer no context. The table below illustrates the lack of information.	379. The FEIS has been modified to clarify the effects of successive dry years on Granby Reservoir water levels, as well as the benefits of modified prepositioning efforts to reduce those effects. As a result of modified prepositioning, water level reductions would be limited to no more than 15 feet in successive dry years under the Proposed Action, compared to existing conditions. See Sections 3.5.4 and 3.19.4 in the FEIS on mitigation to maintain higher Granby Reservoir water levels.

LAKE GRANBY – SURFACE AREA CHANGES – DRY YEAR (MEASURED IN FEET)

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Surface Area	% Change from Existing Conditions	Surface Area	% Change from Existing Conditions
Existing Conditions	?		?	?
No Action	Up to 18' decline	?	?	?
Proposed Action	Up to 23' decline	?	?	?
Alternatives 3-5	?	?	?	?

Sources: DEIS page 3-236

380	***River Hydrology and Adjacent Recreation Dependent Developments.*** In Grand County, private developments and recreation oriented destinations are a primary foundation of the local economy. Deterring recreation activity in the Colorado River through changes in the timing and magnitude of water flow, water temperature, and water quality directly impacts the socioeconomic fabric of the Grand County economy. There are several major real estate resorts, dude ranches and developments along the Colorado River that rely on fishing as an important guest service or resident benefit; these include Shorefox, Elk Trout Lodge and Bar Lazy J. The DEIS acknowledges the presence of two of these developments but attributes no potentially negative impacts from further hydrologic compromises to the River. (See comment R-2.)	380. The DEIS correctly states that hydrological changes are unlikely to adversely impact sport fishing under any alternative. This is based on both the timing of flow changes and the results of the Aquatic Resources analysis, which determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. Potential impacts on private fishing lodges have been added to the FEIS. See Sections 3.8.4 and 3.9.4 of the FEIS for mitigation measures for aquatic resources.
381	***Average Monthly Streamflow and Fishing.*** The DEIS reports average monthly streamflow information by reach but states that there is no adverse impact on fish habitat based on estimated effects to fish habitat and communities. (page 3-236) There is an intricate relationship between *daily* stream hydrology (flow magnitude, water temperature) and fishing. Fish don't function on a monthly average basis. If flow levels are too high, anglers cannot wade safely; if flow levels are too low or temperatures are too high, anglers will avoid fishing to preclude further stress the fish. In our judgment, an inadequate amount of information has been presented to reach the DEIS conclusion.	381. As stated in the EIS Chapter 3, Section 3.9.2.2, daily streamflows were used for the impact assessment for aquatic resources. Monthly flows were not used.

Com-ment	Letter #1075	Response
381	Even with the data as presented, the impact of the Proposed Action and Alternatives 3, 4 and 5 are to reduce the number of days of preferred flows by 20% to 43% in some instances. This magnitude of decrease may effectively eliminate these activities from Grand County.	
382	***Commercial Kayaking and Rafting – WGFP Effects Quantified.*** The DEIS provides extensive information regarding the impact of a change in daily streamflow regime on commercial kayaking and commercial rafting in Reaches 2, 4 and 5 of the Colorado River relative to preferred flows. These figures are important because they are one of few impacts to be quantified and reported in the socioeconomic section (3.22). The data is analyzed against a baseline study period that extends from 1950 to 1996; it excludes the more recent information where streamflows may have been lower. If more recent data includes lower streamflows, then the number of days of inadequate flow increases. This may be a serious methodological issue that should be considered. It is unclear how the designations of "preferred flow" and "minimum preferred flows" were determined. The American Whitewater Association has conducted a series of studies aimed at quantifying flow needs that support the "outstandingly remarkable" rafting, float-fishing and kayaking activities on the Colorado River. [30] The DEIS concludes that the reduced streamflows will have a negligible impact but for in Reach 2, where there is a 22.7% reduction between the Proposed Action and Existing Conditions. The percent change is presented in the last column in the table below. In a prior section, the DEIS discounts this significant reduction by stating that in Reach 2, "Byers Canyon does not support commercial boating and is infrequently used for kayaking." (page 3-239) The socioeconomic section miscalculates the impact in Reach 2, as described later in this memorandum.	382. There would be no change in WGFP diversions during dry years because of the junior nature of the project water rights; therefore, inclusion of additional years would not change effects associated with the WGFP. The development of "preferred flow" and "minimum preferred flow" standards for boating on the Colorado River was based on previous studies, published guidebooks, and personal communications with raft guides and BLM staff. After review of the Grand County SMP and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs at Pumphouse. The Recreation section of the FEIS includes these changes.

DEIS ANALYSIS: WINDY GAP FIRMING PROJECT EFFECTS
COLORADO RIVER DAILY STREAMFLOW CHANGES AND IMPACT ON COMMERCIAL KAYAKING AND RAFTING

Reach Name and Number	Boat Type	CFS	Number of Days over 47 Years within "Preferred" Range			
			Existing Conditions	No Action	Proposed Action	% Change: Existing to Proposed
Byers, #2	Kayaking	> 400	1012	870	792	-22.7%
Big Gore #4	Rafting	850 – 1,250	848	824	825	-2.7%
	Kayaking	400 – 2,200 (1)	1,421	1,425	1,425	-0.3%
	Kayaking	1,100 – 2,200 (2)	1,034	1,035	1,030	-0.4%
Pumphouse, #5	Rafting & Kayaking	400 – 3,000 (1)	3,498	3,520	3,536	+1.1%
	Rafting	2,000 – 3,000 (2)	441	447	421	-4.5%

(1) "Minimum Preferred Streamflows" (2) "Preferred Streamflows"
Sources: DEIS Tables: 3-117, 3-119, 3-120, 3-121, 3-122, 3-123

- For "minimum preferred conditions", the DEIS sets a wider band of streamflows. This term seems internally inconsistent.

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Com-ment	Letter #1075	Response
382	- The derivation of these figures is not explained in the recreation section and so it is not possible to validate the figures independently. (See comments R-5 and R-21.)	383. See response to Comment No. 382. Preferred flow ranges have been changed and simplified to improve the analysis. In addition, WGFP cumulative effects hydrology modeling of the Moffat Project overstated the decrease in Blue River flows by 30,000 AF annually because Denver Water changed their estimate of future water demand after the hydrology modeling for the WGFP was completed. Therefore, cumulative impacts to flows for boating in the WGFP FEIS are overstated and would be less than described.
383	***Commercial Kayaking and Rafting – Cumulative Effects Quantified.*** The DEIS also provides extensive information regarding the cumulative impact of a change in daily streamflow regime on commercial kayaking and commercial rafting in Reaches 2, 4 and 5. For preferred flows (not preferred minimum flows), cumulative effects are a negative 28% in Reach 2, a negative 20% in Reach 4 and a negative 43% in Reach 5. In Reach 5, preferred rafting streamflows (2,000 to 3,000 cfs) under Existing Conditions are achieved an average of 10% of the time (441 / 4324 days = 10%); with the Proposed Action, rafting in preferred streamflow conditions will be achieved 6% of the time, a 40% reduction. When preferred conditions occur so rarely, this significant drop may signal the end of commercial rafting in Reach 5.
	DEIS ANALYSIS: CUMULATIVE EFFECTS COLORADO RIVER DAILY STREAMFLOW CHANGES AND IMPACT ON COMMERCIAL KAYAKING AND RAFTING
	Reach Name and Number / Boat Type / CFS / Number of Days over 47 Years within "Preferred" Range: Existing Conditions / No Action / Proposed Action / % Change: Existing to Proposed
	Byers, #2 — Kayaking — > 400 — 1,012 — 768 — 725 — -28.4%
	Big Gore #4 — Rafting — 850 – 1,250 — 848 — 808 — 792 — -6.6%
	Big Gore #4 — Kayaking — 400 – 2,200 (1) — 1,421 — 1,416 — 1,416 — -0.4%
	Big Gore #4 — Kayaking — 1,100 – 2,200(2) — 1,034 — 844 — 827 — -20.0%
	Pumphouse, #5 — Rafting & Kayaking — 400 – 3,000 (1) — 3,498 — 3,563 — 3,579 — +2.3%
	Pumphouse, #5 — Rafting — 2,000 – 3,000 (2) — 441 — 235 — 251 — -43.1%
	(1) "Minimum Preferred Streamflows" (2) "Preferred Streamflows" Sources: DEIS Tables: 3-124, 3-126, 3-127, 3-128, 3-129, 3-130
	- The difference between "minimum preferred streamflows" and "preferred streamflows" is significant when considering cumulative effects. The term "minimum preferred streamflows" appears to be internally inconsistent. - The derivation of these cumulative figures is not explained in the recreation section and so it is not possible to validate the figures independently. (See comments R-5 and R-21.)	
384	***Colorado River – Average Monthly Streamflow Changes.*** The *Recreation Resources Technical Report* (ERO Resources, 7/08) provides average monthly streamflow information for various reaches of the Colorado River. These figures are excluded from the DEIS. The tables below summarize this data for the month of July for each reach of the Colorado River.	384. As stated in the DEIS, it is reasonable to assume that streamflow changes are not likely to impact boating in reaches where little boating occurs. Impacts to fishing were analyzed based on flow as a component of overall aquatic habitat, as described in the Aquatic Resource section.

Com-ment	Letter #1075	Response
384	- *Colorado River Reach #1.* For the Proposed Action in an average year, average monthly streamflow changes, using July as an example, are 11% below Existing Conditions; for the Proposed Action plus cumulative effects, the average monthly streamflow is 18% below Existing Conditions, a 63% reduction. Yet, the DEIS finds no impact to fishing or boating in this Reach. (See comment R-18.)	
385	- *Colorado River Reach #2.* For the Proposed Action, the reduction in average monthly streamflow in an average year, using July as an example, is 22% below Existing Conditions and 24% below Existing Conditions under cumulative effects. This reach has a "Gold Medal" fishing designation. Yet, the DEIS concludes no negative impacts to fishing. Boating is discussed elsewhere. (See comment R-19.)	385. See response to Comment No. 370.
386	- *Colorado River Reach #3.* For the Proposed Action, the reduction in average streamflow in an average year, using July as an example, is 14% below Existing Conditions and 17% below Existing Conditions under cumulative effects. This reach has a "Gold Medal" fishing designation. The DEIS concludes that there is limited boating in this Reach so negative impacts associated with lower streamflows are not quantified and fishing is not impacted. (See comment R-20.)	386. See response to Comment No. 370.

COLORADO RIVER – REACH #1 (LAKE GRANBY TO WINDY GAP)
AVERAGE YEAR - AVERAGE MONTHLY FLOW – JULY

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Existing Conditions	519		519	
No Action	487	-6%	441	-15%
Proposed Action	462	-11%	425	-18%
Alternatives 3-5	467	-10%	429	-17%

Sources: *Recreation Resources Technical* Report, p 38, p 64

COLORADO RIVER – REACH #2 – WINDY GAP RESERVOIR TO WILLIAMS FORK RIVER (BYERS CANYON)
AVERAGE YEAR – AVERAGE MONTHLY FLOW – JULY

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Existing Conditions	482		482	
No Action	386	-20%	355	-26%
Proposed Action	374	-22%	265	-24%
Alternatives 3-5	351	-27%	336	-30%

Sources: *Recreation Resources Technical* Report, p 40, p 65

COLORADO RIVER – REACH #3 (WILLIAMS FORK TO KREMMLING)
AVERAGE YEAR – AVERAGE MONTHLY FLOW-JULY

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Existing Conditions	735		735	
No Action	641	-13%	597	-19%

Com-ment	Letter #1075	Response
386	COLORADO RIVER – REACH #3 (WILLIAMS FORK TO KREMMLING) AVERAGE YEAR – AVERAGE MONTHLY FLOW-JULY Sources: *Recreation Resources Technical* Report, p 42, p 68	

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Proposed Action	629	-14%	607	-17%
Alternatives 3-5	606	-18%	578	-21%

387	- *Colorado River Reach #4.* For the Proposed Action in an average year, reduction in average monthly streamflow, using July as an example, is 6% below Existing Conditions and 25% below Existing Conditions under cumulative effects. This is among the most significant differences between the WGFP effects and cumulative effects. There is no discussion of this difference in the DEIS. The Gore Race, an internationally acclaimed race that brings visitors and economic benefit to western Grand County, occurs annually in August in Reach 4. Streamflow for the time period leading up to and the day of the event is important since this is the time period where competitors are making a go/no go decision. Preferred streamflows are marginally achieved (Figure 3-74, p 3-240) during August with WGFP effects and are not achieved under cumulative effects (Figure 3-77, p 3-249). If the hydrological study period had been extended from 1996, we question whether preferred streamflows could be achieved in August. Mitigation on the weekend of the event is inadequate because competitors already know that preferred flows are marginal or not being achieved. The conclusion appears to be inconsistent with the analysis. The DEIS states that with mitigation, the Gore Race boating event, held in August, should not be affected. The conclusion appears to be inconsistent with the analysis.
	COLORADO RIVER – REACH #4 (KREMMLING TO PUMPHOUSE – BIG GORE CANYON) AVERAGE YEAR – AVERAGE MONTHLY FLOW-JULY Sources: *Recreation Resources Technical* Report, p 44, p 69.

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Existing Conditions	1,745		1,745	
No Action	1,660	-5%	1,303	-25%
Proposed Action	1,647	-6%	1,313	-25%
Alternatives 3-5	1,624	-7%	1,286	-26%

388	- *Colorado River Reach #5.* In an average year, the DEIS provides a graph for WGFP effects in Reach 5 (Figure 3-75, p 3-241) but not for cumulative effects. The *Recreation Resources Technical Report* provides both graphs (p 49 and 76). Neither document provides corollary data in tabular format. The WGFP graph indicates that preferred average monthly streamflows for rafting are only achieved in June; the cumulative effects graph indicates that preferred average monthly streamflows for rafting are possibly achieved in June only.

REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 22 OF 40

387. The analysis of boating on the Colorado River is based on changes to preferred boating flows using daily flows for the 47-year study period, not average monthly flows. While the cumulative effects of WGFP and other projects would result in a decrease in streamflow of up to 25 percent in July, the remaining flow (1,313 cfs) would still be above the preferred boating flow for Big Gore Canyon, and within the range of preferred flows for the Pumphouse reach. Under this same scenario, the average flow during June (2,002 cfs) would still be well above the preferred flow range for Big Gore Canyon, although it would be 24 percent less than existing conditions. Also, see response to Comment No. 382.
Based on comments and input from the BLM, the preferred flow range for the Gore Race is the same as the general boating range: 850 to 1,250 cfs. The FEIS has been changed to reflect this correction. The Subdistrict remains committed to the mitigation measure of reducing diversions during the race in August if flows fall below 1,250 cfs. Given this mitigation commitment and the flows that are necessary to support the race, it is reasonable to state that the WGFP would have no effect on the Gore Race.

388. See response to Comment Nos. 382 and 387 regarding flow ranges. One of the purposes of the Recreation Technical Report is to provide more detailed documentation of the resources and potential effects, some of which are not repeated at the same level of detail in the EIS. The average change in number of preferred flow days (1,100 to 2,200 cfs) for this reach would be less than 1 day per year.

Com-ment	Letter #1075	Response
388	Using daily streamflow information (see above), the DEIS concludes that there would be a neutral to positive impact of days when streamflow would be within the preferred flow range. (Tables 3-122, 3-123) with WGFP effects. This conclusion seems significantly understated given the monthly streamflow information.	

COLORADO RIVER – REACH #5 (PUMPHOUSE TO STATE BRIDGE)
AVERAGE YEAR – AVERAGE MONTHLY FLOW - JULY

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Average Monthly Flow (CFS)	% Change from Existing Conditions	Average Monthly Flow (CFS)	% Change from Existing Conditions
Existing Conditions	Graph but no data		Graph but no data	
No Action	Graph but no data		Graph but no data	
Proposed Action	Graph but no data		Graph but no data	
Alternatives 3-5	Graph but no data		Graph but no data	

Source of Graphs: DEIS, Figure 3-75, page 3-241; Recreation Technical Report, 7/08, pages 49 and 76.

1.8 VISUAL QUALITY (DEIS SECTION 3.21)

389 ***Narrow Definition of Visual Quality.*** The DEIS "study area" for the visual quality assessment focuses only on the visual quality surrounding the proposed new reservoirs. The DEIS acknowledges a concern expressed during "scoping" about the impact to scenic resources from hydrological changes and does make some qualitative remarks.

389. The Visual Quality section in both the DEIS and FEIS includes a detailed discussion about the visual effects on existing streams and reservoirs based on hydrological changes.

Visual Impacts of Water Resources. Grand County economy thrives on the visual beauty of the Colorado River and its reservoirs.

390 - *Colorado River*. The DEIS dismisses the likely degradation of visual quality to the Colorado River from lower streamflows and the related additional moss and algae growth on the riverbed. The DEIS reports that "lower streamflows could potentially reduce the visual quality of the Colorado River, but for most viewers these changes would not be discernable." The data provided in this section is expressed in average monthly "feet" reduced with no information about the magnitude of the statistic relative to Existing Conditions. The reviewer cannot analyze the results with incomplete information. (See Comment V-5.)

390. See response to Comment No. 263 regarding moss and algae. The FEIS clarifies that the average monthly changes in river stage is compared to existing conditions. The majority of changes in stream stage would occur at higher flows during spring runoff. Diversions in the summer months when flows are lower would be more noticeable. Proposed mitigation measures (FEIS Section 3.8.4) that reduce nutrient loading to the Fraser River, Willow Creek, and Colorado River are expected to have a beneficial effect on water quality.

391 - *Willow Creek below Willow Creek Reservoir*. The DEIS reports lower average annual streamflows of 7% under the No Action, 14% under the Proposed Action and 12% for others. Average annual streamflows are a poor indicator of visual quality which is experienced by viewers on a daily, not average annual basis. The DEIS acknowledges that lower flows would reduce the visual quality for some viewers, but dismisses the impact because "public access…is limited."

391. Average monthly streamflows are a reasonable means of characterizing anticipated hydrological changes. The DEIS and FEIS acknowledge the potential for visual quality effects on Willow Creek, but it is correct to state that the lack of public access (and therefore people who view the resource) would diminish the impact.

Com-ment	Letter #1075	Response
392	- *Grand Lake.* The DEIS mentions "predicted changes in water clarity or increased algal growth in Grand Lake may contribute to diminished visual quality" but makes no attempt to quantify the impact or measure its socioeconomic consequences. This statement holds for the WGFP and the cumulative impacts. (See comment V-2)	392. See response to Town of Grand Lake (Letter No. 222) Comment No.2.
393	- *Shadow Mountain Reservoir.* The DEIS states that there will be no change in water clarity and minor water quality changes. These impacts "are unlikely to noticeably affect the visual quality." The conclusion is not quantified or substantiated. (See comment V-3.)	393. See response to Town of Grand Lake (Letter No. 222) Comment No.2.
394	- *Lake Granby.* The DEIS reports increases in visible shoreline in an average year that are up to 93% greater than Existing Conditions due to the WGFP and 120% greater than Existing Conditions from Cumulative Effects. During dry years, the analysis does not provide comparable data. With these sizeable impacts, the DEIS states only that the visual quality of the reservoir for some viewers would be reduced. There is no quantification of potential negative effects on visitation and no follow through in the socioeconomic impact analysis. The magnitude of quantitative information appears to be inconsistent with the qualitative and unsubstantiated judgment. (See comments V-4 and V-7.)	394. The Visual Quality analysis does not speculate on visitor behavior or reactions to aesthetic effects. The potential socioeconomic effects of low lake levels are described in greater detail in the Socioeconomics section. However, sufficient information is not available to correlate lower lake levels with visitor use and behavior. See proposed mitigation in Sections 3.5.4 and 3.19.4 describing how modified prepositioning would maintain higher water levels in Granby Reservoir.

LAKE GRANBY – EXPOSED SHORELINE IN AVERAGE YEAR (MEASURED IN ACRES)

Alternative	Windy Gap Firming Project		Cumulative Effects	
	Exposed Shoreline	% Change from Existing Conditions	Exposed Shoreline	% Change from Existing Conditions
Existing Conditions	290		290	
No Action	398	37%	450	55%
Proposed Action	560	93%	638	120%
Alternatives 3-5	445	53%	456	57%

Sources: DEIS pages 3-268 and 3-270

In addition, one year of a substantially negative effect may have a multiple year impact on visitors who may not return and who might tell their friends about their negative experience. This has been the experience of local business community representatives.

1.9 SOCIOECONOMIC IMPACTS (DEIS SECTION 3.22)

Socioeconomic Impacts Considered. The socioeconomic impacts that are quantified are:
- construction costs, jobs and economic output associated with new reservoir construction;
- loss of agricultural land and related output due to reservoir construction;
- loss of commercial kayaking and rafting participants on three reaches of the Colorado River;
- camping associated with loss of kayaking and rafting participants on one reach of the Colorado River.

395	***Excluded Impacts.*** The most significant flaw with the socioeconomic impact section is that it is too narrow. There are three types of impacts that are excluded from consideration, understated, or ignored in the socio-economic impact analysis: (a) Impacts referenced in the *Public Scoping*	395. See response to Comment Nos. 328 through 346.

Com-ment	Letter #1075	Response
395	*Report* and not pursued; (b) Impacts referenced in the Recreation, Land Use or Visual Impacts sections and not pursued; (c) Impacts missing from the analysis. These are have been detailed earlier in Sections 1.1, 1.2 and 1.3. (See comment SE-2.)	
396	***Pervasive Disregard for the Private Sector in Grand County.*** Water resources and the local Grand County economy are inextricably linked.[31] The WGFP directly impacts the environmental quality of the Colorado River, Lake Granby, Shadow Mountain Reservoir, and Grand Lake. There is a pervasive and nearly total disregard for private sector impacts from the WGFP. Some private sector impacts that are ignored include: - ranchers whose irrigation systems fail due to reduced streamflow in the Colorado River; - ranchers who rely on fishing leases along the Colorado River; - real estate and resort developments where a healthy Colorado River is their primary or sole asset; - lakefront and riverfront properties whose value is directly related to reservoir water clarity and water quality; - numerous summer recreation-oriented and visitor-oriented businesses including private marinas, local motels, restaurants, recreation gear and apparel retailers, grocers and the like; - construction-related impacts on adjacent properties and developments.	396. See response to Comment Nos. 328 through 346.
397	***Socioeconomic Impacts Excluded – Recreation.*** The most significant exclusion develops from the DEIS' definition of recreation which is active recreation where there is public access. In Grand County, the "recreation sector" has a widespread impact on the entire economy, since recreation is a primary economic driver. When recreation impacts are described in qualitative or conditional terms and marginalized because they are "too difficult to quantify" or "unlikely to affect visitors", then they are dropped from further consideration and excluded from the summary section. These are discussed in Section 1.7. This is inconsistent with EPA *Guidelines for Economic Analyses*, which provide extensive detail on how to treat qualitative or uncertain impacts. (See comments SE-3 - SE-7, SE-10, and SE-12.)	397. See response to Comment No. 348. The analysis in the Socioeconomics section is consistent with the portion of the 2000 EPA Guidelines for Economic Analyses that are relevant to NEPA analyses (note that the 2008 version is still a draft and is not to be cited according to the EPA).
398	***Socioeconomic Impacts Excluded – Land Use / Agricultural Impacts.*** The Land Use Section (3.18) of the DEIS does not acknowledge a relationship between Colorado River hydrology and agricultural land use. Therefore, the socioeconomic section does not address this important negative impact. Based on my research, there are substantial potential negative relationships between further reductions in Colorado River streamflow and agricultural land uses through irrigation ditch failures, impacts to development directly dependent on river and reservoir views and usage. These are documented in communications with the Grand County ranching community. [32] (See comments SE-1 and SE-9.)	398. See response to Comment Nos. 355 through 364. The Subdistrict would comply with state water law. Also, see the 1980 and 1985 agreements included with the water rights decrees for the Windy Gap project.
399	***Countywide Analysis.*** The few socioeconomic impacts that are reported are presented on a countywide basis. This approach misses the significance of impacts that may seem small on a countywide basis but comprise the economic lifeblood of smaller communities and some economic sectors. For example fishing and boating along some reaches of the Colorado River are significant areas of summer economic activity in the relatively small communities of Hot	399. See response to Comment No. 351.

Com-ment	Letter #1075	Response
399	Sulphur Springs and Kremmling. The *Public Scoping Report* expressly mentions concerns about impacts on these communities.	
400	***Cumulative Effects Analysis.*** The DEIS states that the "cumulative socioeconomic effects were evaluated" but provides only the results of this analysis. The analytical steps are excluded from the DEIS and the *Socioeconomic Technical Resource Report*, so it is not possible to analyze the results.	400. The Cumulative Effects section for Socioeconomics was clarified in the FEIS to explain that the quantitative socioeconomic and hydropower impacts were calculated using the same methodology as direct effects, based on cumulative effects hydrology.
	1.10 MITIGATION In the visual, land use, recreation and socioeconomic impacts, the DEIS provides very few mitigation solutions because it quantifies very few impacts, as summarized below. While there is a relative broad remark about negotiating a fair market value for any property impacted, it is reasonable to interpret the meaning to focus only on land required for outright purchase by the property.	
	SUMMARY OF MITIGATION RECOMMENDATIONS IN GRAND COUNTY TYPE — WGFP MITIGATION & CUMULATIVE EFFECTS MITIGATION Land Use — "No specific mitigation … other than what may be needed for land acquisitions or county land use requirements, including special use review, location and extent review and 1041 permitting." (p 3-229) Compensation for acquisition of property or homes impacted by project facilities (p. 3-229) Recreation — "..curtail Colorado River diversions during the annual Big Gore Race..held in August if flows at the Kremmling gage are below 2,200 cfs." (P 3-253) Visual — "Minimize amount of grand clearing, reclamation and restoration of areas disturbed during construction." (P 3-272) Socioeconomic — " … negotiate a fair market value for acquisition of any property or homes that would be impacted by implementation of any alternative." (p 3-290) "…curtail Colorado River diversions during the annual Big Gore Race…held in August if flows at the Kremmling gage are below 2,200 cfs." (P 3-290) Source: DEIS, various pages listed above.	
401	If the DEIS is amended to acknowledge and quantify the range of remarks identified above, then there are a host of mitigation solutions that may minimize and in some cases, eliminate negative impacts. If impacts are not acknowledged, then extensive monitoring arrangements should be implemented to assure that the DEIS conclusions hold true with automatic and mandatory mitigation actions if the conclusions do not hold true.	401. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
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Com-ment	Letter #1075	Response
402	**2.0 SPECIFIC COMMENTS BY PAGE** **2.1 LAND USE IMPACTS** **Comment LU-1, Page 3-223.** *New Reservoir Impacts Only.* "…effects to existing land uses were evaluated based on anticipated changes at reservoir sites." "None of the alternatives would directly affect land use at locations outside of those needed to support project facilities." The analysis assumes that land uses are only impacted by new construction. Our findings show that ranchers with irrigation ditches along the Colorado River and real estate developments that rely on fishing as a feature or singular summer activity are directly impacted by changes in Colorado River streamflows. Also, summer visitors who have come to enjoy the stretch of US 40 in Grand County because of its National and Colorado Scenic Byway designation may also be impacted.	402. See response to Comment No. 348 regarding irrigation ditches and water rights, and Comment No. 365 regarding the overall approach to recreation analysis. The Recreation section in the FEIS has been revised to further acknowledge private fishing lodges along the Colorado River.
403	**Comment LU-2, Page 3-223.** *Agricultural Impacts – WGFP.* This section acknowledges that water diversions would affect Colorado River streamflows downstream of the Windy Gap diversion but states without any proof that "No new facilities would be constructed along the Colorado River that would affect land ownership and land uses." This ignores the relationship between the flow of water and directly related irrigation ditch structure failures. The original Windy Gap Project acknowledged this relationship and provided $500,000 in mitigation funds to correct problems. The DEIS finds no problem with further reductions in streamflows. Our investigation verified that reduced streamflows and irrigation ditch structure failures are related.	403. See response to Comment No. 348. The Subdistrict would comply with state water law. Also, see the 1980 and 1985 agreements included with the water rights decrees for the Windy Gap project.
404	**Comment LU-3, page 3-227, 3-228 and 3-229.** *Construction Impacts.* Construction impacts for 38 months are mentioned in Alternatives 3, 4, and 5 including periodic traffic delays and congestion. However, there is no mention of (a) potentially adverse effects to residential properties; (b) financial impacts on the County due to reduction in assessed valuation from between 70 and 530 acres of private land, and; (c) mitigation solutions.	404. The effects of construction of a reservoir and related facilities on private property and businesses are discussed in the Socioeconomics section of the FEIS. In addition, possible temporary reductions in property values due to noise, traffic, and disturbances are described in the Socioeconomics section. Property tax impacts have been added to the Socioeconomics section.
405	**Comment LU-4, Page 3-229.** *Agricultural Impacts – Cumulative Effects.* "Reasonably foreseeable water-based actions on the West Slope would affect streamflows in the Colorado River, but would not have any direct incremental effect on land ownership or use that overlap the effects of the WGFP." If ditch irrigation systems cannot function, then there is a direct and significant impact on agricultural land uses, as described above.	405. See response to Comment No. 403.
406	**Comment LU-5, page 3-229.** *Land Use Mitigation.* There are no land use mitigation recommendations, even though there are acknowledged impacts.	406. Reclamation and the Subdistrict worked to identify meaningful and reasonable mitigation measures to address impacts of the WGFP. It is acknowledged that not all effects of the project would be mitigated.

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407	**2.2 RECREATION** **Comment R-1, page 3-230.** *Data Sources / Method.* "Emphasis was given to water-based recreation because the greatest potential for recreation impacts would occur to activities such as boating and fishing." This remark is unsubstantiated, ignores specific remarks in the Public Scoping Document, and significantly understates the significance of water to recreation in the Grand County economy.	407. The emphasis of the Recreation analysis on water-based recreation is reasonable considering that most of the impacts and the concerns identified during scoping are related to boating and fishing. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report and in the section on Effects Common to All Alternatives in the EIS. Additional information is provided in the response to Comment No. 372.
408	**Comment R-2, page 3-231.** *Colorado River – Reach #1.* "This 7-mile reach … is mostly private land with no designated recreation sites. Fishing opportunities are present primarily on private land…such as Orvis." With these statements, there is no recognition that the 1,553-acre Shorefox development by Orvis is directly dependent on a healthy Colorado River, not only for fishing but also for it passive scenic beauty as it traverses through residential lots and golf courses. This development features the Colorado River as its primary asset and is an example of the inextricable connection of the local recreation-based Grand County economy to its river corridors.	408. Potential effects of hydrological changes on commercial and private fishing opportunities are briefly described in the FEIS. However, the Aquatic Resources analysis determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. Our understanding is that the Orvis Shorefox development was never completed and is in foreclosure.
409	**Comment R-3, page 3-231.** *Colorado River – Gold Medal Stream Designation – Reach #2.* "This reach is designated as a Gold Medal stream for outstanding fishing opportunities." There is no follow-up as to whether the WGFP or cumulative impacts would threaten this valued designation that has direct socioeconomic effects on the local tourism sector in the summer months.	409. See response to Comment No. 370. The Windy Gap Project cannot divert water when streamflows below Windy Gap Reservoir drop below the minimum streamflow of 90 cfs. Aquatic resource mitigation measures are described in Sections 3.8.4 and 3.9.4 of the FEIS.
410	**Comment R-4, page 3-231.** *Colorado River – Gold Medal Stream Designation – Reach #3.* "Gold Medal waters for fishing are present upstream of Troublesome Creek ... Private lands adjacent to the river, such as Elk Trout Lodge property, also provide opportunities for fishing access and guided fishing." There is no follow-up as to whether the WGFP or cumulative impacts would threaten this valued designation or impact the high-profile Elk Trout Lodge. The commercial guest ranch referenced is a 22-guest resort that was established 25 years ago. It attracts affluent people seeking a high-quality fishing experience and is among the largest employers in this area. Also, outfitters make needed supplemental income by providing fishing guide services on this vital Gold Medal stretch of the Colorado River.	410. See response to Comment Nos. 408 and 409.
411	**Comment R-5, page 3-231** *"Preferred Flows."* Table 3-114 introduces a category called "preferred minimum flows." The term, which is used in subsequent sections, seems internally inconsistent. No explanation of the term is provided. The *Draft Grand County Stream Management Plan – Phase 2* [33] provides clearly documented definitions of minimum and optimum streamflows. The authors should review and consider use of this report.	411. See response to Bureau of Land Management (Letter No. 1054) Comment No. 7.
412	**Comment R-6, page 3-233** *Commercial vs. Total Usage.* This section of the DEIS reports both commercial boating and commercial fishing data and total visitation data for Reach 4. Total visitation data, which	412. The total visitation data reported in the DEIS is for both water- and land-based recreation within the Pumphouse and Radium Recreation Areas administered by the BLM. The commercial boating and fishing data are separate, and is truly limited to commercial visitors. Potential economic effects to land-based nonboating recreational uses in the Gore Canyon area are evaluated in the Socioeconomic section of the FEIS.

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412	presumably includes commercial and private visitation, is 44% higher than commercial only data. The remainder of the DEIS focuses on only commercial boating and commercial fishing information. Private visitation has similar socioeconomic impacts as commercial visitation. If total visitation data were used throughout the discussion of recreation, then the impact analysis would be more complete and reliable.	
413	**Comment R-7, page 3-233.** *Fishing Guides.* The DEIS reports that 15 companies offer guided fishing trips in Reach 4, totaling about 30,000 to 40,000 annual user days. There is no discussion about the potential of reduced fishing activity in the recreation section and the ripple effect in the local economy in the subsequent socioeconomic section. The relationship between fishing activity and the Colorado River is a function of daily flows, water temperature, clarity, and fish, not a singular function of fish habitat. [34] The *Draft Grand County Stream Management Plan-Phase* 2 [35] provides well-researched information about optimum flows for angling.	413. See response to National Wildlife Federation (Letter No.1108) Comment No. 5.
414	**Comment R-8, page 3-233.** *Commercial Boating Only.* Socioeconomic effects considered commercial boating and fishing only. Boating and fishing are core summertime visitor activities. What about the impact of reductions in private boating and fishing. This likely has a significant visitor impact.	414. Impacts on private boating were quantified where estimates were available in the socioeconomics section (Byers Canyon) and are at least partially covered by using a worst-case assumption of the complete loss of private boating when flows are less than the preferred range. Per CEQ guidance and regulations implementing the provisions of the National Environmental Policy Act, agencies are required to use the best available information and there is currently no reliable data for private boating use on the Upper Colorado, and most commercial use is downstream of Kremmling.
415	**Comment R-9, page 3-235.** *Water Surface Area Impacts.* The DEIS states, "In general, a decrease in water surface area would be considered a negative effect, although it is difficult to quantify any change in visitor use." The researchers appear to have made no effort to quantify potential effects, even though there is recent relevant experience in the Lake Granby area from 2002 and 2003. [36]	415. A number of factors contribute changes in visitor use at Granby Reservoir. No statistical information is kept on visitor numbers at Granby Reservoir from which to compare visitor numbers for different years. Certainly, visitor preference is for a fuller reservoir, but quantifying the incremental impacts on recreation and visitation from strictly changes in lake level for a water storage reservoir that fluctuates widely is challenging. We are not aware of readily available information on the impacts specifically related to low Granby water levels in 2002 and 2003. To reduce the frequency and amount of fluctuations in Granby Reservoir, prepositioning was modified to maintain about 340,000 AF of storage in the reservoir or an elevation of about 8,250 feet (FEIS Section 3.5.4).
416	**Comment R-10, page 3-235.** *Wild & Scenic River Designation – Colorado River Designation.* All five reaches of the Colorado River are under consideration for "Wild and Scenic River" designation by the BLM. The DEIS makes no attempt to evaluate the impacts of the WGFP or the cumulative effects against the criteria being used by the BLM to determine eligibility. This is a potentially significant designation that could generate substantial visitor revenues for Grand County. While not usurping BLM's analysis, the DEIS should compare eligibility requirements against anticipated effects of the WGFP and the cumulative effects.	416. See response to Comment No. 371.
417	**Comment R-11, page 3-236.** *Land-Based Recreation.* The DEIS states that "the effects to water-based recreation would have limited direct impacts on land-based recreation activities such as camping, picnicking and hiking. … There could be a decrease in camping in upper Colorado River campgrounds during periods when streamflow is less than preferred for boating." While these two statements are in the same paragraph. They seem to conflict with each other.	417. Comment noted. The latter statement is not supported and has been deleted from the FEIS.

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417	Visitors may come (or not come) to Grand County for water-based recreation such as fishing and boating and then participate in land-based recreation as complimentary activities. There is no effort to determine whether this is true or false.	
418	**Comment R-12, page 3-236.** *Grand Lake and Shadow Mountain Reservoir – Water Quality.* "Reduced water clarity and algal growth has been a concern in Grand Lake and Shadow Mountain Reservoir that may contribute to a diminished recreation experience." There is no further attempt quantify the current recreation usage of Grand Lake and Shadow Mountain Reservoir or to quantify and impacts from the WGFP. As described earlier in this memorandum, there is ample secondary research to analyze this concern.	418. See response to Comment Nos. 343 and 344.
419	**Comment R-13, page 3-236.** *Grand Lake and Shadow Mountain Reservoir – Fishing.* "The assessment of aquatic resources … determined that the predicted water quality changes in Grand Lake and Shadow Mountain Reservoir would not adversely impact fish, and therefore, there would be no effect on fishing opportunities in these lakes." Recreational fishing relates to the environmental quality of the experience as much as the presence of fish. With continued deterioration in water clarity and algal growth, fishing may become less attractive to anglers, regardless of whether there are fish in the water bodies. [37]	419. See response to Comment Nos. 343 and 344.
420	**Comment R-14, page 3-236.** *Lake Granby Surface Area.* The DEIS states that in an average year, the water surface area of Lake Granby would be 140 acres (2%) less under the No Action Alternative, 351 acres (6%) less under the Proposed Action Alternative and 167 acres less under Alternatives 3 to 5. - It is unclear how the Existing Conditions surface area acreage was derived. - The DEIS reports that it is "unlikely to noticeably affect recreation use or the quality of the recreation experience." This is unsubstantiated.	420. Existing Granby Reservoir surface area was derived based on modeling of the 47-year study period. It is reasonable to assume that a 6 percent reduction in surface area in a water storage reservoir that regularly fluctuates under existing conditions would not noticeably affect recreation use or the quality of the recreation experience. See response to Comment No. 421.
421	**Comment R-15, page 3-236.** *Lake Granby Water Level – Dry Years.* The DEIS states that Lake Granby water level could decline by up to 18′ under No Action and 23′ under Proposed Action in consecutive dry years. - There is no correlation with these water level figures and surface acres and so the reader cannot evaluate the magnitude of this remark. - It can take a community years and considerable public relations effort to overcome a bad visitor impression such as this. Our interviews with members of the local business community indicate that visitor impact of a few dry years can last multiple years thereafter. The DEIS ignores this very real possibility.	421. Additional information has been added to the FEIS to better correlate severe drawdowns during consecutive dry years with reservoir surface area. Dry years and low water levels have occurred in the past and would continue to occur in the future. The modified prepositioning mitigation measures proposed by the Subdistrict would maintain higher water levels in Granby Reservoir. With modified prepositioning in place, water level reductions in consecutive dry years would be limited to about 15 feet. See also response to Comment No. 369.
422	**Comment R-16, pages 3-236-237.**	422. See response to Comment No. 377.

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422	*Lake Granby – Boat Ramp Access.* There are 3 public boat ramps on Lake Granby (page 3-230). The DEIS states that the Arapaho Bay ramp would be affected under all alternatives. In successive dry years, Arapahoe Bay, Stillwater and Sunset boat ramps would be not function. (This is 100% of the public boat ramps.) The DEIS states that boat ramp access would be affected and it may reduce the quality of the recreation experience. If all boat ramps are affected, it appears to be an understatement that the circumstance "may" reduce the quality of the recreation experience. Also, there is no quantification of this effect or its ripple effect in the economy in the subsequent socioeconomic section.	
423	**Comment R-17, pages 3-237.** *Lake Granby – Recreation Experience.* The DEIS states that the "relatively small percent reduction in boatable area in most years is unlikely to noticeably affect recreation use or the quality of the recreation experience under any alternative. Additional exposed shoreline at lower water levels could reduce the aesthetic value. Lower water levels under all alternatives would not substantially affect accessibility for shoreline fishing but in periods of success dry years, lower water levels would affect boat ramp access which may reduce the quality of the recreation experience." - This contains a substantial amount of judgment based on one personal communication with a recreation manager with the US Forest Service There is substantial case example information available. - Recent low water years for the Lake Granby (2002 and 2003) appear to have been excluded from the analysis of baseline hydrological conditions, making any impact conclusions questionable. With many reservoir choices, reductions in aesthetic value will likely impact the visitor experience not only in the year that water levels are low but for multiple years thereafter as the visitor experience is remembered and shared with fellow travelers.	423. See response to Comment Nos. 369, 377, 415, 420, and 421.
424	**Comment R-18, page 3-238.** *Colorado River Reach #1 Monthly Streamflow & Fishing.* The DEIS states monthly streamflow for Colorado River Reach 1 would decrease up to 6% under the No Action Alternative and up to 11% under other Alternatives. It states that because this reach is not a popular boating destination, there would be negligible boating impacts; it does not mention fishing impacts. The DEIS also fails to consider the impact on private fishing from the Shorefox development by Orvis, which uses the Colorado River as its feature asset for fishing and aesthetic value.	424. See response to Comment No. 408.
425	**Comment R-19, page 3-238.** *Colorado River Reach #2 (Byers Canyon) – Monthly Streamflow.* In Colorado River Reach 2, average monthly streamflow reduction data is not provided in the DEIS but is provided in the *Recreation Resources Technical Report* (ERO Resources, Page 40, Table 18). This reach would experience among the most significant decreases in average monthly flow.	425. One of the purposes of the Recreation Resources Technical Report is to provide more detailed documentation of the resources and potential effects, some of which are not repeated at the same level of detail in the EIS. Impacts to boating use in Byers Canyon are described in the FEIS. Kayaking use of this reach of the Colorado River is infrequent.
426	**Comment R-20, page 3-238.**	
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426	*Colorado River Reach #3 – Monthly Streamflow.* In Colorado River Reach 3, average monthly streamflow would decrease up to 13% under the No Action Alternative, up to 15% under the Proposed Action and up to 18% under the other action alternatives. The DEIS reports limited boating activity but does not address fishing along this visible stretch. Fish are already compromised due to lower streamflows; monthly streamflow data is inadequate to make any definitive claim about fishing impacts in this or other reaches.	426. See response to Comment Nos. 381 and 386.
427	**Comment R-21, pages3-238, 3-239 to 3-244, 3-247 to 3-252.** *Baseline Data for Reductions in Preferred Streamflow for Kayaking and Rafting.* For Colorado River Reaches 2, 4 and 5, the DEIS provides extensive data regarding the number of days that the preferred streamflow would be below preferred and acceptable levels for kayaking and rafting for the Windy Gap Firming Project and for Cumulative Effects. The baseline data upon which streamflow reductions are measured extends only from 1950 to 1996. If more recent data shows lower streamflow levels, then the magnitude of the calculated impacts should be adjusted.	427. See response to Comment No. 7 regarding the rationale for the hydrological model study period of 1950 to 1996. Also see response to Comment No. 415.
428	**Comment R-22, pages 3-238, 3-239-44.** *Effects of Preferred Streamflow Reductions for Kayaking and Rafting – WPFP Effects.* Refer to the earlier discussion in Section 1.7 of this memorandum.	428. See response to Comment Nos. 382, 387, and 411.
429	**Comment R-23, page 3-246.** *Common Cumulative Effects - Fishing.* "Potential effects to aquatic resources from changes in streamflow and reservoir storage … are unlikely to adversely impact sport fishing under any alternative based on accessed impacts to fish habitat." No substantiation for this assertion is provided.	429. See response to Comment No. 380.
430	**Comment R-24, pages 3-246 – 3-247.** *Lake Granby – Cumulative Effects.* The DEIS reports the No Action Alternative would trigger a surface area decrease of 190 acres (3%), the Proposed Action, 431 acres (7%), and the Action Alternatives, 4%. In a dry year, surface area decrease would be 7% for the No Action, 9% for the Proposed Action and 4% for the other alternatives. The DEIS provides no quantification of potential effects of these impacts and does not follow-through in the socio-economic impact analysis. It simply states that "Lower water levels and reduced surface areas could reduce the quality of the recreation experience…"	430. See response to Comment Nos. 369, 378, and 420.
431	**Comment R-25, pages 3-247 – 3-252** *Effects of Preferred Streamflow Reductions for Kayaking and Rafting – Cumulative Effects.* Refer to the earlier discussion in Section 1.7 of this memorandum.	431. See response to Comment Nos. 383 through 388.
432	**2.3 VISUAL QUALITY** **Comment V-1, page 3-266.**	432. See response to Comment No. 389.

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432	*Issues.* "Issues of concern identified during scoping were the potential effect to existing visual quality near the reservoir sites …and the impact to scenic resources from hydrological changes." The DEIS contains no follow-through related to this concern.	
433	**Comment V-2, page 3-268 and 3-270.** *Grand Lake – water clarity and algal growth.* The DEIS states that "predicted small reductions in water clarity and increased algal growth" in Grand Lake may contribute to diminished visual quality. There is no quantification or follow-through from this remark. Substantial research is available regarding the relationship of water clarity, visitation and property values. [38]	433. See response to Comment No. 392.
434	**Comment V-3, page 3-268 and 3-270.** *Shadow Mountain – Water Clarity.* The DEIS states that there would be no change in water clarity at Shadow Mountain and water quality changes would not likely be noticeable. There is no quantification of the amount of water quality changes and no substantiation of the conclusion. As stated above, there is research available regarding the relationship of water quality and visitation.	434. See response to Comment No. 393.
435	**Comment V-4, page 3-268** *Lake Granby – Shoreline - WGFP.* In an average year, the DEIS states that visible shoreline will increase by 37% with the No Action alternative, 93% with the Proposed Action Alternative, and 53% with Alternatives 3, 4 and 5. In successive drought years, comparable data was not provided. It is critical to provide comparable data for drought years. Also, the DEIS simply provides a qualitative statement that lower water levels "would reduce the visual quality of the reservoir for some viewers compared to existing conditions." The magnitude of these impacts suggests that the unsubstantiated statement is not justified. This potentially significant impact needs to be addressed in a quantitative and rigorous manner.	435. See response to Comment No. 394.
436	**Comment V-5, page 3-269.** *Colorado River Streamflow.* The DEIS reports only single figures for average monthly streamflow reductions in feet. This data is incomplete and misleading. - There are no figures for Existing Conditions; percentage changes cannot be observed in context. - Visual impacts do not occur in monthly average statistics but in daily experiences. - Since only one average monthly streamflow figure is provided per remark, the implication is that it is calculated over 12 months. Winter streamflows are not relevant because visitors do not focus on the visual impacts at this time.	436. The FEIS clarifies that the average monthly changes in river stage is compared to existing conditions. Stream stage varies daily, and for simplicity in comparing alternatives, average monthly stream stage is presented in the FEIS. Stream change was not calculated on an annual basis. The Water Resource Technical Report Appendix E (ERO and Boyle Engineering 2007) shows average monthly stream change by alternative.
437	**Comment V-6, page 3-269.** *Willow Creek Streamflow.* The DEIS reports average annual streamflow reductions in percentage terms. The No Action Alternative would decrease annual average streamflows by 7%, the Proposed Action streamflow would decrease by 14%, and Alternatives 3-5 streamflow would decrease 12% relative to Existing Conditions. Average annual statistics are not meaningful indicators for measuring visual impact because they include winter conditions when visitors are	437. No stage data were available for Willow Creek. Section 3.21.2.5—Visual Quality was revised to indicate changes in average monthly streamflow.

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437	not viewing Willow Creek. They mask the higher streamflow reductions in the summer months.	
438	**Comment V-7, page 3-270.** *Lake Granby – Shoreline – Cumulative Effects.* The DEIS states that the visible shoreline from the cumulative effects will be greater than from the WGFP. In an average year, the DEIS states that visible shoreline will increase by 55% with the No Action Alternative, 120% with the Proposed Action Alternative, and 57% with Alternatives 3, 4 and 5. Similar to above, the DEIS provides a modest qualitative impact remark "changes in shoreline exposure would decrease the visual quality of the reservoir … for some viewers." There is no attempt to quantify related visitor impacts due to reductions in visual quality and no follow-through in the socioeconomic impacts section. As described above, there is ample secondary data as well as direct data about Lake Granby from the recent low water years, 2002 and 2003.	438. See response to Comment Nos. 343 and 374.
439	2.4 SOCIO-ECONOMIC IMPACTS **Comment SE-1, page 3-278.** *Agricultural Impacts.* Lower streamflow and additional irrigation ditch structure failures is a relationship that the Subdistrict does understand. The Municipal Subdistrict paid $500,000 to upgrade diversion structures for ranches below the Colorado River as part of the original construction of Windy Gap Reservoir. However, the potential for additional irrigation ditch structure failures is not acknowledged.	439. The Windy Gap Project cannot divert water when streamflows below Windy Gap Reservoir drop below the minimum streamflow of 90 cfs. See response to Comment No. 348.
440	**Comment SE-2, page 3-279.** *Narrow Recreation Impacts.* The DEIS acknowledges "potential effects to the recreation economy include changes in recreation boating, fishing opportunities and other related land-based activities such as camping and sightseeing." The DEIS only quantifies effects from loss of commercial boating on three Colorado River reaches and camping on one Colorado River reach. It concludes that any other type of impact is "too speculative" or "too difficult to quantify."	440. See response to Comment No. 345.
441	**Comment SE-3, pages 3-280 – 3-281.** *Annualized Cost or Benefit - Kayaking and Rafting Days Lost.* The DEIS estimates numbers of visitor days lost related to reduced kayaking and rafting opportunities by river reach and reports annualized equivalent figures. (Table 3-139). This is based on the analysis of days that streamflow is below preferred levels that are presented in the Recreation Section. There are several unresolved issues regarding these figures. (a) The DEIS and the Socioeconomic Resources Technical Document provide insufficient information to understand these calculations. Having received an oral explanation of mathematical steps from the author, a significant math error that underestimates values was found in the Byers Canyon information. (b) This table should include Existing Conditions so that these figures can be placed into context. (c) If the figures are added, and with the corrected information about Byers Canyon, then the Proposed Action Alternative costs the community $14,905 per year in visitor expenditures lost. (e) There is no mitigation recommendation to counterbalance this annual loss REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 34 OF 40	441. The boating impact information in the Recreation and Socioeconomic sections has been revised and the calculations are explained in the FEIS. There was not a significant math error in the Byers Canyon results reported in the DEIS, and the effects reported in the FEIS are even less based on the preferred flow thresholds in the Grand County SMP. The number of boating days under existing conditions is provided in the Recreation section, which provides context for the changes resulting from the action alternatives. In the FEIS, the total average annual impact from boating impacts under the Proposed Action is about $4,200. There is no requirement under NEPA for all impacts to be mitigated.

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441	which will be concentrated in the small communities of Hot Sulpher Springs (2007 population, 956) and Kremmling (2007 population, 1,564).	
442	**Comment SE-4, page 3-282.** *Colorado River Angling.* In the same paragraph, the DEIS appears to make four seemingly inconsistent or, at a minimum, confusing statements: - "Projected changes in streamflow on the Colorado River below Granby Reservoir under all of the alternatives would result in a loss of fish habitat." - "The anticipated reduced flows, which are greatest during the high runoff period, are not expected to adversely impact fish populations or fishing opportunities." - "Projected effects to fish habitat are not predicted to translate to loss of angling opportunities or fishing success." - "Lower flows in some months could diminish the aesthetic value of the river for some visitors and possibly affect the quality of the recreation experience." Whatever the message is, the DEIS does not quantify potential impacts and does not reference this issue in the summary remarks. Are these figures based on average monthly flows, which would understate the impact on fish populations? Angling relates to an experience that is based not only on the presence of fish population but also on daily flows, water temperature, water clarity, the presence of slippery moss and algae, and other issues. The DEIS statements appear to be inconsistent and are unsubstantiated in the socioeconomic impact section.	442. The Socioeconomics section in the FEIS has been revised to clarify that the alternatives would result in a loss of fish habitat, but that loss of habitat would not result in impacts to fish populations or angling opportunities. See response to Comment No. 380.
443	**Comment SE-5, page 3-282.** *Three Lakes Recreation Usage.* The DEIS states that "reduced water clarity and algal growth … may contribute to a diminished recreation experience…It is unknown whether these issues would translate to a loss in visitors and associated economic effects." This issue is dropped without justification or follow-through. It is not mentioned in the summary chapter. The implication is that there is no effect. "Chronic toxin levels could have an economic effect, but there is currently not enough information to determine whether this is true." Again, this issue is dropped. There is secondary data that provides a relationship between water clarity, algal growth and toxin levels, and recreation and property values. This scholarly research was not considered. *EPA Guidelines for Economic Impacts* clearly state that if an impact cannot be quantified, that an explanation as to why it cannot be quantified is recommended and the qualitative remark should continue to be represented in the analysis. That is, it cannot be dropped just because it is not quantified.	443. See response to Comment 343. Proposed nutrient mitigation measures would reduce loadings to the Three Lakes and the potential for impacts to water clarity, algal growth, and toxins. The analysis in the Socioeconomics section is consistent with the portion of the 2000 EPA Guidelines for Economic Analyses that are relevant to NEPA analyses (note the 2008 version is still a draft and is not to be cited according to the EPA). There is not a requirement under NEPA for each qualitative effect to be included in the Summary of Impacts.
444	**Comment SE-6, page 2-283.** *Lake Granby Recreation Usage.* "Sufficient information is unavailable to determine if lower Lake Granby water levels would directly affect visitor use." The statement was made, even though (a) there is recent experience at Lake Granby that was not pursued or considered; (b) the remark	444. See response to Comment No. 443.

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444	was highlighted in the *Public Scoping Report* as a point of concern, and; (c) the EPA *Guidelines for Economic Impacts* caution against ignoring an impact just because it is not quantified.	
445	**Comment SE-7, page 3-283.** *Three Lakes Fishing Usage.* "Predicted minor changes in physical and water quality conditions are…unlikely to affect the fish communities. Thus, there would be no effect to recreational fishing opportunities." There is no obvious justification for this statement in this section.	445. The logic is sound; if there is no substantial adverse effect on fish, there is not likely to be an effect on fishing.
446	**Comment SE-8, page 3-286.** *Cumulative Effects Analysis.* The DEIS states that the "cumulative socioeconomic effects were evaluated" but provides only the results of this analysis. The analytical steps are excluded from the DEIS and the Socioeconomic Resource Report, so it is not possible to analyze the results.	446. The FEIS explains that the quantitative socioeconomic and hydropower and impacts were calculated using the same methodology as direct effects based on cumulative effects hydrology.
447	**Comment SE-9, page 3-287.** *Agricultural Production – Cumulative Effects.* The DEIS reports that additional water diversions from cumulative effects "would have no cumulative effect to existing agricultural production or farm income in Grand County." This statement is contrary to our research, which shows a direct relationship between streamflows and irrigation ditch operations.	447. See response to Comment No. 348.
448	**Comment SE-10, page 3-287.** *Colorado River – Tourism – Cumulative Effects.* "…no adverse impact to boating or fishing in the Colorado River that would impact the tourism-related expenditures is likely for any alternative." This appears to be contrary to the subsequent section 3.22.3.4.	448. The sentence in Section 3.22.3.2 has been changed to refer only to a no adverse impact on fishing.
449	**Comment SE-11, page 3-288-3-289** *Cumulative Impacts.* The DEIS evaluates cumulative impacts against the No Action Alternative which already includes substantial impacts relative to Existing Conditions. This seriously reduces the magnitude of the impact. Note that in an earlier section, the DEIS evaluates WGFP against Existing Conditions.	449. The cumulative socioeconomic effects are all relative to changes in boating days from existing conditions. This has been clarified in the FEIS.
450	**Comment SE-12, page 3-289.** *Annualized Costs or Benefits – Kayaking and Rafting Days Lost – Cumulative Effects.* Table 3-142 (Section 3.22.3.4) reports annualized costs from commercial kayaking and rafting. In my judgment, there are several unresolved issues with this information: (a) The DEIS and the Socioeconomic Resources Technical Report provide insufficient information to understand these calculations. Having received an oral explanation of mathematical steps from the author, a significant math error that underestimates values was found in the Byers Canyon information.	450. See response to Comment No. 441.
451	(b) This table should include Existing Conditions so that these figures can be placed into context.	451. See response to Comment No. 441.
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452	(c) Data for kayaking in the Pumphouse reach is not provided in the DEIS upon which to make the annualized calculations.	452. See response to Comment No. 441.
453	(d) If the figures are added, and with the corrected information about Byers Canyon, then the Proposed Action Alternative costs the community $148,817 per year in visitor expenditures lost.	453. When comparing the direct effects of the WGFP with the cumulative effects, including reasonably foreseeable water-based actions, it is clear that only a small portion of the impacts is attributable to the WGFP.
454	(e) There is no mitigation recommendation to counterbalance this significant annual loss which will be concentrated in the small communities of Hot Sulpher Springs (2007 population, 956) and Kremmling (2007 population, 1,564).	454. See response to Comment No. 351; there is insufficient information available to evaluate impacts on specific communities. Also, there is no requirement under NEPA for all impacts to be mitigated.
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SUMMARY OF ERO'S FINDINGS – SOCIOECONOMIC MPACTS ON THE EXISTING RESERVOIRS IN GRAND COUNTY
DEIS Socioeconomic Section, 3.22
(This table does not provide additional information that is not presented above.)

Lake/Reservoir	Lake Granby	Shadow Mountain	Grand Lake	Willow Creek	Windy Gap
Boating *(p 3-282, 3-290)*	Unlikely to affect use	No mention	No mention	No mention	No mention
Fishing *(p 3-283)*	No impact	No impact	No impact	No mention	No mention
Camping	No mention	No mention	No mention	No mention	No mention
Other *(p 3-282)*	Aesthetic value may be reduced; don't know if visitor use affected	Diminished recreation experience possible	Diminished recreation experience possible	No mention	No mention

SUMMARY OF ERO'S FINDINGS – SOCIOECONOMIC MPACTS ON THE COLORADO RIVER
DEIS Socioeconomic Section, 3.22
(This table does not provide additional information that is not presented above.)

Reach #	*#1*	#2	#3	#4	#5
Location of Reach	*Lake Granby to Windy Gap*	*Windy Gap Res. to Williams Fork River (Byers Canyon)*	*Williams Fork River to Kremmling*	*Kremmling to Pumphouse (Big Gore)*	*Pumphouse to State Bridge (Pumphouse)*
Land Use *(p 3-287)*	No impact	No impact	No impact	No impact	No impact
Boating – Rafting *(p 3-280, 3-281, 3-288, 3-289)*	No mention	No mention	No mention	Some visitors days lost	Some visitors days lost
Boating – Kayaking *(p3-280, 3-281, 3-288, 3-289)*	No mention	Some visitor days lost	No mention	Some visitors days lost	Some visitor days lost
Camping (p 3-282)	No mention.	No mention.	No mention.	No mention.	Some visitor days lost
Fishing *(p 3-282, 3-289)*	Possible; no measurable effect.	Possible; no measurable effect.	Possible; no measurable effect.	Possible; no measurable effect.	Possible; no measurable effect.
Other	None	None	None	None	None

NA = No Action; PA = Preferred Alternative; 3-5 = Alternatives 3, 4, and 5.

[1] Krysel, Charles, Goyer, Elizabeth Marsh, Parson, Charles and Weele, Patrick. 2003. *Lakeshore Property Values and Water Quality: Evidence from Property Sales in the Mississippi Headwaters Region*. May 2003.

[2] Terrill R. Hanson, Luther Upton Hatch, Howard C. Clonts. 2002. *Reservoir Water Level Impacts on Recreation, Property, and Nonuser Values.* Journal of American Water Resources, Volume 38, No. 4, 1007-1018, 2002)

[3] P. Joan Poor, Keri L. Pessagno, Robert W. Paul. 2006. *Exploring the hedonic value of ambient water quality: A local watershed-based study.* Environmental Economics, 2006, available at www.sciencedirect.com, pp 8-9.

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Com-ment	Letter #1075	Response

[4] Holly Michael, Kevin Boyle, Roy Bouchard. 1996. *Water Quality Affects Property Prices: A Cast Study of Selected Main Lakes.* Maine Agricultural and Forest Experiment Station, Misc. Report 398, February 1996, University of Maine.

[5] Environmental Protection Agency. 2000. *Guidelines for Preparing Economic Analyses.* Office of the Administrator, EPA 240-R-00-003, September 2000, page 21.

[6] Conversation with Bill Thompson, Grand County rancher and water commissioner, December 2006.

[7] Tetra Tech, Walsh Aquatic Consultants, Inc., Habitech, Inc. *Draft Report – Grand County Stream Management Plan – Phase 2.* April 2008, pages CR4-2, CR5-2.

[8] Dean Runyon Associates. 2004. *Economic Impact of Travel on Colorado: 1996 – 2003,* prepared for the Colorado Tourism Office, June 2004, page 41.

[9] 2003 Travel Expenditures in Grand County, $169,700,000 / 2003 retail sales in Grand County, $316,668,000 = 54%. Retail sales data are from the Colorado Department of Revenue.

[10] Data provided by Colorado Department of Revenue web site.

[11] Tetra Tech, *Ibid.*

[12] Senate Document 80, 75th Congress, 1st Session, Colorado-Big Thompson Project, June 15, 1937, page 3.

[13] Conversation with Mayor Clark, December 2006.

[14] BBC Research & Consulting, *The Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado.* 2008. Prepared for the Colorado Division of Wildlife.

[15] Fishing Experts and Fishing-Related Business Representatives. Conversation with owners of Mo Henry's Trout Shop, other experienced and knowledgeable anglers in Grand County and experts knowledgeable about fishing in Grand County. December 2008.

[16] Tetra Tech, *Ibid,* pages CR4-4, CR5-3, CR6-4.

[17] Terrill R. Hanson

[18] Kevin Boyle, Jennifer Scheutz and Jeffery Kahl. 1997. *Great Ponds Play an Integral Part of Maine's Economy.* University of Maine Water Research Institute Report #473.

[19] Conversation with Dan Murphy, owner of the Fishing Hole in Kremmling, December 2006.

[20] Colorado Wildlife Commission Policy, "Wild and Gold Medal Trout Management", effective date: September 18, 1992; revised date: June 12, 2008.

[21] Environmental Protection Agency. 2000. *Ibid.*

Com-ment	Letter #1075	Response
	[22] National Center for Environmental Economics. 2008. *Guidelines for Preparing Economic Analyses – External Review Draft*. Office of Policy Economics and Innovation, US Environmental Protection Agency, September 12, 2008. [23] Environmental Protection Agency, *Ibid.* page 27. [24] Ibid, page 175. [25] Terrill R. Hanson. [26] Kevin Boyle. [27] Senate Document 80, *ibid.* [28] Lake Granby Business Community. Telephone conversations with Granby Chamber of Commerce staff, Granby area motel operator and other business representatives indicate that there is a direct relationship between surface water acreage and visitors. (November 2008) [29] Sharon Brenner, President, CEO, Greater Granby Area Chamber of Commerce. December 2008. [30] http://www.americanwhitewater.org. _ [31] Coley/Forrest, Inc. 2007. *Grand County: Its Economy and Water Resources.* Prepared for Grand County Colorado. [32] Ibid. [33] Tetra Tech, *Ibid.* [34] Fishing Experts and Fishing-Related Business Representatives, *Ibid.* [35] Tetra Tech, *Ibid.* [36] Lake Granby Business Community. [37] Terrill R. Hanson, Kevin Boyle. [38] Charles Krysel, Terrill R. Hanson, P. Joan Poor, and Holly Michael. REVIEW OF WINDY GAP FIRMING PROJECT DEIS OF AUGUST 2008 – PAGE 40 OF 40	

Response to Comments by Government Agencies and Elected Officials

This section provides copies of the letters received from federal, state, and local government agencies; tribal governments; and elected officials on the Draft EIS. The letters are organized alphabetically by the agency's or official's name and the letter number where comments and responses can be found (Table 1). Original comment letters have been reproduced with Reclamation's response to each of the numbered comments.

Table 1. Comments by government agency and elected officials.

Agency/Official	Commenter	Letter Number
Bureau of Land Management, Colorado State Office	Sally Wisely	1054
City and County of Broomfield	Mike Bartleson	357
City and County of Broomfield	Mike Bartleson	406
City of Fort Collins	Brian Janonis	220
City of Fort Lupton	Rick Bendel	358
City of Greeley	Ed Clark	362
City of Longmont	Ken Huson	415
City of Louisville	Chuck Sisk	1091
City of Loveland	Gene Pielin	232
Colorado District 56 Representative	Christine Scanlan	1114
Colorado Division of Wildlife	Thomas Remington	1058
Colorado House of Representatives	Al White	403
Colorado House of Representatives	Jerry Sonnenberg	1150
Colorado River Water Conservation District	Eric Kuhn	1062
Comanche Nation of Oklahoma	Jimmy Arterberry	5
Eagle County Environmental Health Department	Raymond Merry	904
Environmental Protection Agency, Region 8	Larry Svoboda	1141
Fish and Wildlife Service, Colorado Field Office	Susan Linner	57
Granby Sanitation District	Dave Johnson	1148
Grand County (see cooperating agency response)	Barbara Green	1075
Grand County	Lurline Underbrink Curran	400
Grand County Water and Sanitation	Bruce Hutchins	1073`
Grand Lake and NWCOG	Gina Hardin	411
Grand Lake Shoreline Association	Pat Raney	392
Greeley Water and Sewer Department	Jon Monson	419
Larimer County Board of County Commissioners	Glenn Gibson	46
Loveland Dept. of Water and Power	Gary Hausman	91
Loveland Utility Commission	Gary Hausman	412
Middle Park Conservation District	Board of Directors	1149
Middle Park Conservation District	Duane Scholl	1096

Agency/Official	Commenter	Letter Number
Municipal Subdistrict, NCWCD	Les Williams	426
National Wildlife Federation	Stephen Torbit	1108
Northwest Colorado Council of Governments	Lane Wyatt	404
Northwest Colorado Council of Governments	Lane Wyatt	1107
Northwest Council of Governments	Shanna Koenig	377
Office of Archaeology and Historic Preservation	Edward C. Nichols	131
Pitkin County Board of Commissioners	Rachel Richards	1111
St. Vrain & Left Hand Water Conservancy District	Vernon Peppler	1145
Sulphur Ranger District	Craig Magwire	1127
Summit County	Gary Martinez	1120
Tabernash Meadows Water and Sanitation	Lauralee Kourse	378
Town of Erie	Gary Behlen	407
Town of Erie	Gary Behlen	1142
Town of Fraser	Jeff Durbin	1069
Town of Granby	Don Baird	1072
Town of Grand Lake	Elmer Lanzi	379
Town of Grand Lake	Judy M. Burke	222
Town of Grand Lake	Judy M. Burke	361
Town of Grand Lake	Shane Hale	369
Town of Grand Lake	Tom Weydert	402
Town of Hot Sulphur Springs	Hershal Deputy	364
Town of Kremmling	Thomas A. Clark	227
Town of Minturn	Gary Suiter	1101
Town of Winter Park	Jim Myers	253
Winter Park Ranch Water and Sanitation District	Jon Westerlund	1135
Winter Park Water & Sanitation District	Jack Buchheister	1151
Winter Park Water and Sanitation District	Mike Wageck	401

Agency Letters and Responses

Com-ment	Letter #1054	Response

WGFP 1054

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7093
www.blm.gov/co

TAKE PRIDE IN AMERICA

In Reply Refer To:
7250 (CO-932)

DEC 23 2008

Tully

Mr. Will Tully
Bureau of Reclamation
11056 W. County Road 18E
Loveland, CO 80537

Dear Mr. Tully:

Please accept the Colorado Bureau of Land Management's (BLM) enclosed comments on the proposed Windy Gap Firming Project. The BLM appreciates the Bureau of Reclamation's (BOR) recognition of the Wild and Scenic River analysis process that is currently underway as part of the revision of the Kremmling and Glenwood Springs Resource Management Plans. The BLM hopes that the enclosed comments will assist BOR and water users in clarifying potential impacts that could occur to resources managed by BLM as a result of the proposed project. We also hope that the enclosed comments provide Reclamation with workable ideas for project mitigation that could be cooperatively implemented with Northern Colorado Water Conservancy District to minimize project impacts.

If you would like to arrange further discussion of the enclosed comments, please contact Roy Smith at (303) 239-3940.

Sincerely,

Acting

Sally Wisely
State Director

Enclosure

cc:
Dave Stout, Kremmling Field Office Manager
Jamie Connell, Glenwood Springs Field Office Manager
Roy Masinton, Royal Gorge Field Office Manage

Com-ment	Letter #1054	Response
1	**BLM Colorado Comments – Windy Gap Draft EIS** • **Affected Area for Impact Analysis** - BLM is concerned that the area analyzed for impacts differs from resource to resource. For example, the aquatic resources analysis extends downstream only to the confluence with the Blue River, while the recreation analysis extends downstream to State Bridge. Measurable impacts were noted for recreational resources in the Blue River to State Bridge reach, so it is possible that measurable impacts could occur to aquatic resources. BLM suggests incorporating an analysis of aquatic resource impacts from the Blue River to State Bridge, including a discussion of temperature impacts during low flow periods.	1. The area of potential effect may vary among the resources depending on the likely area of impact. The Aquatic Resources section includes an analysis of impacts to habitat downstream of the Blue River confluence. Those impacts are discussed in more detail in the revisions to Section 3.9.2.3 of the FEIS. Because hydrologic impacts of the WGFP on the Colorado River diminish below the Blue River confluence, measurable impacts to aquatic resources are unlikely farther downstream. Results of the analysis impacts to fish habitat from hydrologic data at the Kremmling gage below the Blue River are indicative of likely impacts for several miles downstream. Minimal changes in Colorado River stream temperature or aquatic habitat are estimated below the Blue River as discussed in the FEIS.
2	• **Stream Temperature Impacts on Fisheries** - The EIS makes it clear that the greatest temperature impacts will occur during the May through August period. However, the monthly analysis provided does not allow a more detailed analysis of the period in which the river typically experiences problems with high water temperature impacts on fish populations. Specifically, the analysis stated that stream temperatures may increase up to 4 degrees Celsius just above the confluence with the Williams Fork when the river is at the minimum flow of 90 cfs. This conclusion is based on the analysis of one day (July 25), but it is clear that stream temperatures are affected by conditions on antecedent days. If the river experiences extended length and frequency of low flow periods at 90 cfs as a result of the project, temperatures could rise significantly beyond the increase calculated in the one-day analysis. Typically, temperature impacts on fisheries are assessed for increases in both acute temperatures and average weekly temperatures. BLM suggests that the EIS include a daily flow analysis of the annual period of July 15 through August 15, so that the reader can identify how much more frequently the 90 cfs condition will occur and can identify how much more frequently temperature issues may occur. This daily analysis could be included in both the direct and cumulative impact sections. BLM also suggests including a discussion of the impact of extended low flow and high temperature periods on the recruitment success and disease resistance for trout species. If these analyses reveal fish population impacts from temperatures, we also suggest a discussion on the resulting indirect impacts to recreational fishing opportunities. Finally, Reclamation may want to consider mitigation in the form of a real-time temperature gaging staging station just above the confluence with the Williams Fork River, and posting of that data continuously on Northern's or Reclamation's website. Having temperature information constantly available would allow water managers in the basin to take preventative actions when temperatures start approaching acute levels, rather than waiting until the fish population demonstrates signs of stress. Reclamation could also consider operational restrictions that would be triggered only when temperatures reach acute levels for the trout population.	2. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP.
3	• **Scope of Fisheries Analysis** - BLM suggests a more complete fisheries analysis from our perspective as managers of aquatic habitat on federal lands. The current analysis focuses only on the amount of habitat available for adult and juvenile fishes, and includes no analysis of habitat available for spawning or fry life stages. The analysis also includes no discussion on impacts to 1	3. The scope of the fisheries habitat analysis was developed in consultation with CDOW at the time of site selection for the habitat analysis in 2004. The species and life stages of interest were adult and juvenile rainbow and brown trout.

Com-ment	Letter #1054	Response
3	other fish species, such as mottled sculpin. In addition, the fisheries analysis doesn't include population trend data for the existing condition, information that BLM believes is readily available from the Division of Wildlife. The report concludes that the species composition and distribution of macroinvertebrates is not expected to change. However, the EIS doesn't include an analysis of how extended low flow periods will affect the macroinvertebrate community, since a lower percentage of the stream channel will be inundated after the project is implemented.	Habitat suitability information is required for each species analyzed. These data are not available for most nongame species, as is the case for mottled sculpin. It is assumed that the range of habitat conditions analyzed would be protective of the species present in the river. Fish population data were obtained from CDOW and is included in the DEIS. The conclusion regarding macroinvertebrate populations was based on the hydrology data. There would be no change to the base flows in the project area for average and dry years. There are changes during runoff, however, research on macroinvertebrate colonization shows that full colonization requires approximately two months. This time requirement would likely preclude colonization of streambed area that is dry prior to runoff. Further, most macroinvertebrates in snowmelt rivers have evolved to avoid runoff. This is accomplished by being very small (egg or early instar), or out of the water (adult phase).
4	• **Whirling Disease Impacts on Fisheries** - In the aquatic resources section, Nehring (DOW) is quoted as saying in 2006 that the last 5-6 years has shown a decrease in the Triactinomyxon populations (stage in the life cycle of the Whirling Disease parasite) in Windy Gap reservoir. BLM suggests that Reclamation may want to consider whether there is any relationship between TAM populations and specific Windy Gap operations.	4. The change in TAM levels may be more a factor of changes to the tubifex species than operations. In a presentation on the Colorado River Fishery, Jon Ewert, CDOW biologist, stated that the tubifex species were changing in Windy Gap Reservoir, which also contributes to the lower TAM levels. The tubifex present in the reservoir now include species that are not suitable hosts for TAMs. CDOW research by Thompson (2005) shows that the presence of myxospores in trout is not reduced as a result of habitat modifications. The more successful approach for control is to manage for resistant strains of host organisms.
5	• **Channel Maintenance Flows** - While the proposed changes to the river hydrograph may not affect overall stream morphology as defined by large materials and bedrock, BLM believes there may be a potential for significant impacts related to fine sediments and algal growth. In other river systems in Colorado, BLM has experienced situations in which the stream channel becomes "cemented" when algal growth and fine sediments are not washed out by regular high flow events. This "cementing" drastically reduces the interstitial spaces available for fish spawning and drastically reduces the surfaces available for macroinvertebrate habitat. BLM suggests analysis and discussion of this potential impact, and Reclamation may want to consider mitigation measures for preventing this impact. As part of this analysis, BLM recommends specific disclosure of the reduction in the number of years in which "wet" year hydrology will occur, and conclusions about whether any reduction in "wet" years will result in impacts to fine sediments and algal growth.	5. The sediment transport rate of the Colorado River far exceeds the sediment supply even at the higher diversion rates used in the original Windy Gap EIS. This is discussed in Section 3.7 of the FEIS. The river would continue to convey fine sediment without aggradation. There would be little change in the number of "wet" years, as defined by total annual flow volumes at the gage near Granby, under any of the alternatives at both the near Granby and below Windy Gap locations. Near Granby, the number of wet years would decrease at most by 8.5%, and would become average flow years under Alternatives 2 through 5 (this would not occur under the No Action Alternative). Below the Windy Gap diversion, the number of wet years would decrease at most by 11%, becoming average flow years. The reduction in wet years would not result in impacts to fine sediment movement in the Colorado River because there would still be many days of flows of 450 cfs or more (see Tables 3-32 and 3-34 in the FEIS). In addition, a recent evaluation was completed of available streamflow versus shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs.
6	• **Rafting and Kayaking Impacts** – In the EIS, BLM noted a potential impact on rafting and kayaking flows between Big Gore Canyon and Pumphouse. BLM has identified recreational boating as an outstandingly remarkable value for this stream segment as part of its Wild & Scenic Rivers suitability analysis. For rafting, the proposed project would have no impact during 37 of the 47 years analyzed during the period of record, but during the other ten years it could reduce flows outside of the preferred range for rafting by an average of 2.3 days. Although this doesn't appear to be a large number of days, when the Windy Gap impact is combined with other cumulative impacts, the overall impact is to reduce flows below rates that are considered preferred for rafting during significant portions of some years. For example, the cumulative effects portrayed in Figure 22 result in flows below the preferred level for rafting during both May and August, when compared to the current condition. Reclamation may want to consider an operational stipulation, in the form of limits on diversion during certain flow conditions, to minimize impacts on the outstandingly remarkable value. As noted above, this operational restriction would have operational impacts on the project only 10 years in 47, and then only during a few days of each of those years. BLM acknowledges that the recognition of Wild & 2	

Com-ment	Letter #1054	Response
6	Scenic Rivers values occurred long after water rights were established for the Windy Gap Project, but the project proponents may be willing to alter operations and minimize project impacts.	Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations located from below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows small changes in flows of 150 cfs or less, and for Kremmling shows almost no changes at flows of about 1,000 cfs or less. Additional discussion on this issue was added to the FEIS in Section 3.7.2.3.
7	• **Minimum Flows for Acceptable Rafting** - In the affected environment Recreation section, the minimum acceptable flows for rafting below Pumphouse are identified at 400 to 800 cfs, citing Sommerhoff. BLM suggests using the broader data set established by the Upper Colorado River stakeholders group to establish minimum acceptable flows for rafting. That data set suggests slightly higher flows, in the 800 to 1000 cfs range.	
8	The environmental effects section on Big Gore Canyon identifies mitigation to possible impacts to the annual Gore Canyon Race by reducing diversions if the river flow is below 2,200 cfs. The affected environment section correctly states that the preferred level for rafting in Gore Canyon is between 850 and 1,250 cfs. The race participants would prefer flows in the preferred range, rather than 2,200 cfs.	A review of the hydraulic data generated from the River2D model shows that the flows of 450 cfs and greater, which would be present with the project in place, have the ability to clean the gravels of fine sediment and move some of the small to medium-size gravels. Based on the hydraulic information and the fact that the channel geomorphology is not expected to change, an impact to the fishery is not expected. The FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap.
9	• **Recreation Use Numbers** - In the affected environment section, some of the numbers cited from Arkin for commercial and private fishing days appear to be erroneous by a factor of ten. BLM suggests that Reclamation revisit these numbers with the Kremmling Field Office to ensure that they are accurately stated.	
10	• **Riparian Communities** - BLM is concerned that the vegetation analysis lacks an analysis of impact of the proposed project on riparian communities along the Colorado River. Even though the draft EIS concludes that there will be no significant change to channel morphology or sediment transport, there still could be significant effects to riparian communities. Reduction in peak flows may result in significantly shorter periods of time when riparian species root zones are saturated, and may result in less recharge to alluvial aquifers that support riparian communities during low flow periods. Dramatic reductions in flow when additional project diversions occur may reduce reproductive success of cottonwood trees, which rely on slow, gradual reductions of flows after cottonwood seedlings are established on sand and gravel bars in the river channel. Finally, reduced peak flow periods could result in increased invasion of the floodplain zone by upland species, if floodplain areas are saturated for shorter periods of time.	6. The preferred flow ranges for boating in the FEIS were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs in Pumphouse. As noted in the comment, flows outside the preferred range would occur about 2.3 days per year in about 10 of 47 years. Although preferred boating days may not be met for short periods in some years, this does not mean that no boating would occur. While these changes would be more frequent as a result of cumulative effects, the WGFP mitigation commitments are limited to direct effects of the project.
11	• **Mitigation and Bypass Flow Requirements** - It is not clear in the draft document what types of mitigation requirements and bypass flow requirements are built into the analysis. For example, will diversion from the firming project be subject to the same bypass flow requirements that have previously governed all Windy Gap operations? Will the firming project diversion be junior or senior to Colorado Water Conservation Board instream flow water rights? There should be specific disclosure as to whether Reclamation believes that current Windy Gap project mitigation requirements will be sufficient to minimize and offset impacts from the additional proposed diversions.	7. After review of the Grand County Stream Management Plan and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs in Pumphouse. Section 3.19.2 of FEIS includes these changes.
	3	8. Based on comments and input from the BLM, the preferred flow range for the Gore Race is the same as the general boating range: 850 to 1,250 cfs. Section

Com-ment	Letter #1054	Response
		3.19.2 of the FEIS has been changed to reflect this correction. The Subdistrict remains committed to the mitigation measure of reducing diversions during the race in August if flows fall below 1,250 cfs. 9. The FEIS includes corrected and updated commercial use numbers provided by BLM staff. 10. Table 3-32 in the EIS shows that peak flows ranging from bankfull flows to 25-year flows would continue to occur under the alternatives. The reductions in peak flows that would occur below the Windy Gap diversion result in short periods of time (up to 30 days, but typically less than 2 weeks) when stage reductions averaging 4 inches (and as much as 2.2 feet for a few days in 2 percent of all years) could occur in the alluvium within a few feet of the river. Floodplain areas also are recharged by the water movement, both on the surface and as ground water, from higher areas to the river. Given the predicted stage reductions and the short periods of time when they would occur, it is unlikely there would be significant effects to riparian communities. These communities already experience similar changes in surface flows and ground water levels as a result of natural climatic variability, as well as surface water use and shallow alluvial ground water pumping. Additional discussion on this issue was added to Section 3.10.3.6 in the FEIS. 11. The existing minimum flow of 90 cfs below Windy Gap Reservoir, 135 cfs below Williams Fork, and 150 cfs below Troublesome Creek would be maintained with the WGFP. These flows were established in an agreement between the Subdistrict and the Colorado Division of Wildlife signed in June 1980. If Windy Gap is not diverting, the Subdistrict has no obligation or ability to maintain flows at these levels. These flows were established for the original Windy Gap project, which anticipated diverting approximately 10,000 acre-feet per year, on an average annual basis, more than the currently proposed project. Any CWCB minimum flow rights on the Colorado River would remain in the same priority as they currently are. Temperature mitigation measures for the WGFP included in the CRS 37-60-122.2 Fish and Wildlife Mitigation Plan (FEIS Appendix E) would further reduce the potential for adverse impacts to aquatic resources during the summer months.

Com-ment	Letter #357	Response
1	WGFP 357 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Mike Bartleson MR. BARTLESON: My name is Mike Bartleson. That's B-a-r-t-l-e-s-o-n. And I represent the city and county of Broomfield. Broomfield's drinking water supply consists of a potable water contract with Denver water, and raw water from the Colorado Big Thompson Windy Gap projects. The Windy Gap water is a critical water supply in Broomfield's planning. It will represent approximately 25 percent of Broomfield's overall water supply at build-out. When the city purchased -- when the city purchased its 56 Windy Gap units, it fully understood that it would require firming to make this a reliable water supply. The project representing a collaborative regionalized approach to address the growing needs of the entities along the Front Range. When the Windy Gap project is firmed, Broomfield will have 5,600 acre-foot of firm water for potable system and approximately 3,100 acre-foot for the reuse system, which the first phase is completed in 2004. Taken together, the first and second use of the water will yield 8,700 acre-foot of water to Broomfield when it is firmed. The city currently uses its Windy Gap water when it's available, and we estimate that in 2008, 2,300 acre-foot of Windy Gap effluent will be used for irrigation purposes. The city has implemented a number of water conservation measures and is in the process of updating and strengthening its water conservation plan under the guidelines of the Colorado Water Conservation Board's Office of Water Conservation and Drought Planning. One conservation program that Broomfield has in place consists of a farm Broomfield purchased that is now producing two drought-tolerant turfs, one for high-impact areas, such as park and ball fields, and one for right-of-ways. This surf uses anywhere from three-quarters to one-half of the water requirement of traditional bluegrass. Other programs include restricting the turf allowed on new residential developments and a water line replacement program that has reduced losses upstream of the customer's meter to less than five percent.	1. Thank you for your comment.

Com-ment	Letter #357	Response
1	Broomfield recognizes that there is a significant incentive to reducing water loss and encouraging efficient use by its customers. As I said, the Windy Gap water source is a critical element to Broomfield's water supply, and the firming project is absolutely necessary for Broomfield and the other participants to fully utilize this municipal source. Thank you.	

Com-ment	Letter #406	Response
1	WGFP 406 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 Mike Bartleson MR. BARTLESON: Mike Bartleson, representing the City and County of the Broomfield. Broomfield's drinking water supply consists of a potable water contract with the Denver Water Department and raw water from the Colorado Big Thompson and the Windy Gap projects. The Windy Gap water is a critical water supply in Broomfield's plan. It will represent approximately 25 percent of Broomfield's overall water supply at build-out. When the City purchased its 56 Windy Gap units, it fully understood that it would require firming to make this a reliable water supply. The project represents a collaborative region-wide approach to address the growing needs of entities along the Front Range. When the Windy Gap project is firmed, Broomfield will have 5,600 acre-feet of firm water for its potable system and approximately 3,100 acre-feet for its reuse system when the first phase was completed in 2004. Taken together, the first and second use of this water will yield 8,700 acre-feet of water to Broomfield when it's firmed. The City currently uses it's Windy Gap water rights when it's available and we estimate that in 2008, 2300 acre-feet of the Windy Gap effluent will be reused for irrigation. The City has implemented a number of water conservation measures and is in the process of updating its water conservation plan under the guidelines of the Colorado Water Conservation Board's Office of Water Conservation and Drought Management. One conservation program that Broomfield has in place consists of a farm Broomfield purchased that is now producing two drought-tolerant turfs, one for high-impact areas such as parks and ball fields and one for right-of-ways. This turf uses anywhere from three-quarters to one-half of water requirement of a traditional bluegrass. Other programs including restricting the turf allowed in new residential developments and a water line replacement program that has reduced losses upstream to the customer's water meter to less than 5 percent system-wide. Broomfield recognizes that there is a specific incentive to reducing water losses and encouraging efficient use by its customers. As I said, the Windy Gap water source is a critical element of Broomfield's water supply and a firming project is absolutely necessary for Broomfield and the other participants to fully utilize this municipal water source.	1. Thank you for your comments.

Com-ment	Letter #220	Response

City of Fort Collins

Utilities
electric stormwater wastewater water
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ENV-6.00

Tully 1300

December 4, 2008

Mr. Will Tully
Bureau of Reclamation
11056 West County Road 18E
Loveland, CO 80537

Re: Comments on the Windy Gap Firming Project Draft Environmental Impact Statement

Dear Mr. Tully:

The City of Fort Collins respectfully submits these comments on the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) issued by the Bureau of Reclamation on August 29, 2008. The Fort Collins Utilities staff reviewed the DEIS and has several concerns regarding the impact the project will have on the quality of water that is available to the City in Horsetooth Reservoir. We want to present these concerns for your consideration and we look forward to the Bureau's response.

Water delivered from the Windy Gap Project is an important water source for the City of Fort Collins. The City was one of the original participants in the project but assigned its interest in it to Platte River Power Authority (Platte River) prior to the project's construction. The City and Platte River subsequently entered into an agreement which allows the transfer of Windy Gap water to the City in exchange for other waters provided by the City to Platte River. As a co-owner of Platte River, the City receives electricity that is generated at Platte River's Rawhide Energy Station.

The City believes the proposed Windy Gap Firming Project will improve the reliability of Windy Gap deliveries to Platte River, and subsequently to the City. A storage reservoir, separate from the Colorado-Big Thompson Project reservoirs, will provide the participants in the project with the ability to even out their supplies from year to year. A reliable supply from the Windy Gap Project is very beneficial to both entities. While recognizing the importance of a firm water supply, it is also critical that the project participants support a high level of vigilance regarding water quality and take the necessary measures to identify potential impacts to and protect future water quality in the system.

Importance of Horsetooth Reservoir to the City of Fort Collins. Horsetooth Reservoir is one of two source waters for the City of Fort Collins Water Treatment Facility (FCWTF). It is essential to the City that the existing high quality of their source waters be maintained in

Com-ment	Letter #220	Response
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	order to avoid increased treatment costs, assure overall system reliability, and to provide the highest quality water to its customers. Increases in concentrations of manganese, total organic carbon (TOC), geosmin (or other taste and odor compounds), turbidity, pathogens, or algal toxins at the FCWTF Horsetooth Reservoir intake can impact treatment strategies, process performance, and treatment costs.	
1	**DEIS Water Quality Impact Analysis for Horsetooth Reservoir.** The DEIS impact analysis conducted for Horsetooth Reservoir (page 3-114) indicates that there will be a small increase in nutrients and chlorophyll-a as a result of the Proposed Action. Increases in nutrients and chlorophyll-a are significant to the FCWTF since they can be potentially related to increases in TOC, geosmin (or other taste and odor compounds), turbidity, and algal toxins. The DEIS also states that dissolved manganese concentrations may increase due to decreased hypolimnetic dissolved oxygen concentrations. The FCWTF has processes for manganese removal, but increased manganese concentrations will result in higher chemical dosages and increased chemical costs.	1. The discussion on Page 3-114 of the DEIS anticipates that effects of increased nutrients in the Three lakes system as a result of the WGFP would carry over to eastern slope reservoirs and exacerbate the current oxygen problem in Horsetooth Reservoir. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, will reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP will not exacerbate the algae and clarity problem in Shadow Mountain Reservoir and Grand Lake and would not exacerbate the oxygen problem in Horsetooth Reservoir and possible increases in dissolved manganese as a result of decreased hypolimnetic oxygen.
2	**Total Organic Carbon (TOC).** TOC was not included in the discussion of the existing water quality (page 3-83 and Table 3-40) and was not included in the water quality impact analysis (page 3-114). Because it is a critical parameter of water quality and chemistry for municipal water supply, it must be addressed as part of the DEIS. TOC is detrimental to the FCWTF because it hinders the optimization and efficiency of water treatment unit operations, including coagulation and settling, and serves as the main building-block for the formation of disinfection by-products (DBPs). DBPs are potential carcinogens formed when TOC reacts with chlorine used for disinfection. Trihalomethanes (such as chloroform) and haloacetic acids (such as trichloroacetic acid) are two groups of DPBs that can be formed during chlorination. Treated water delivered from the FCWTF must not exceed Maximum Contaminant Levels (MCLs) for these two groups of DPBs as set forth in the US EPA Disinfectants/ Disinfection By-Products Rule (USEPA 1998, 2001). These regulations also require the removal of TOC to minimize DBP formation if raw water TOC concentrations are greater than 2.0 mg/L. TOC concentrations at the FCWTF raw water intake at Soldier Canyon Dam averaged 3.16 mg/L in 2007 based on weekly samples collected and analyzed by the City of Fort Collins Water Quality Lab. Horsetooth Reservoir has experienced a statistically significant upward trend in TOC concentrations over the period of record. This trend has been documented in the Haby and Loftis (2007) report prepared for the Big Thompson Watershed Forum. That report also documented statistically significant upward trends in TOC concentrations at the East Portal Adams Tunnel and the Hansen Feeder Canal near Horsetooth Reservoir. Although it is unknown if these trends will persist into the future, the City is paying close attention to them and has initiated a study with researchers at UCLA to better understand the nature and source	2. A discussion of TOC was added to Section 3.8.2.5 of the FEIS for Horsetooth Reservoir since it is a direct-use drinking water supply. Proposed mitigation to offset nutrient loading to the Three Lakes would also benefit Horsetooth Reservoir and thus, chlorophyll *a* concentrations, TOC, and geosim are unlikely to increase as a result of the WGFP as discussed in Section 3.8.4 of the FEIS.

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2	of TOC in Horsetooth Reservoir. The City has concerns about these trends because, if they continue, elevated concentrations of TOC in Horsetooth Reservoir will eventually have a direct adverse cumulative impact on water treatment and the attainment of existing regulated drinking water treatment standards and goals. Any increase in Horsetooth Reservoir TOC concentrations that result from the proposed project will exacerbate this situation.	
3	**Geosmin.** Geosmin was not included in the discussion of the existing water quality (page 3-83 and Table 3-40) and was not included in the water quality impact analysis (page 3-114). Increases in nutrients and chlorophyll-a in Horsetooth Reservoir (as identified in the water quality impact analysis) can be potentially related to increases in geosmin and other taste and odor compounds. Geosmin is one of the most difficult taste and odor compounds to remove during water treatment. Geosmin is a naturally occurring organic compound produced by blue-green algae (Cyanobacteria). When blue-green algae die and decompose, geosmin can be released into the water. Geosmin imparts an earthy, boiled beets odor to water and can be detected by the most sensitive noses at extremely low concentrations (about 5 nanograms per liter (ng/L) or 5 parts per trillion (ppt)). Geosmin does not pose a public health risk, but its detectible presence in treated drinking water can cause serious public concern about the safety and aesthetic quality of their drinking water. Utilities around the country receive a record number of complaints whenever a geosmin outbreak occurs in their water supply. Geosmin is of special concern to the City, because many of the industrial customers of its water, such as the Anheuser-Busch, New Belgium and Odell breweries, are especially sensitive to any unusual taste or odor properties that customers may detect in their products. Geosmin has been found in water samples from the North Fork Poudre River reservoirs at concentrations over 100 ng/L (Billica, Loftis, and Moore, 2008). The highest geosmin concentration measured to date in Horsetooth Reservoir was nearly 25 ng/L in October 2008. This high geosmin episode resulted in taste and odor complaints to the City and to the Tri-Districts Soldier Canyon Filter Plant. The City responded by increasing the powdered activated carbon dose for geosmin removal and ensuring that the amount of Horsetooth Reservoir water treated at the plant was minimized. The City is concerned that any increase in nutrients in Horsetooth Reservoir may increase blue-green algal production and result in waters with more frequent episodes of high geosmin concentrations, or with higher geosmin concentrations than have been observed to date. This concern relates not only to potential taste and odor issues for our community and major industries, but also to the significantly higher treatment costs required to remove geosmin back to "non-detect" odor threshold levels (i.e. less than 5 ppt).	3. See response to Comment No. 2. A discussion of geosmin has been added to Section 3.8.2.5 of the FEIS for Horsetooth Reservoir, since it is a direct-use drinking water supply.
4	**Invasive Mussels**: A September 26, 2008 press release from the Colorado Division of Wildlife states:	4. Quagga and zebra mussel veligers were detected in the Three Lakes in 2008. Established populations of quagga and zebra mussels can have significant impacts in the areas of water supply and delivery, power generation, recreation, and reservoir water quality and ecology. Additional text has been added to Section 3.8.1.3 of the FEIS discussing the anticipated effect of the WGFP on the spread of quagga and zebra mussel. Briefly, Reclamation does not believe that the WGFP will affect the spread of quagga and zebra mussels because C-BT Project water will continue to be distributed to areas mentioned in the comment.

Com-ment	Letter #220	Response
4	WGFP DEIS Comments December 4, 2008 Page 4 "A Federal and State initiative to gather more information on the presence of aquatic invasive species in Colorado confirmed the presence of invasive mussel larvae in Grand Lake, Shadow Mountain and Willow Creek Reservoirs in Grand County. These waters are physically connected to Lake Granby. Quagga mussel larvae were discovered in Lake Granby earlier this summer." "Veligers, the larval stage of quagga and zebra mussels, were initially identified by a microscopic analysis of water samples and subsequently confirmed as invasive mussels by DNA testing. Results from an independent laboratory confirm that both zebra and quagga mussels are present in Grand Lake, while only quagga mussels have been found at Willow Creek, Shadow Mountain and Lake Granby." Waters in these lakes and reservoirs are interconnected through the Colorado-Big Thompson (C-BT) Project. Through growth and reproduction, both zebra and quagga mussels have the potential to drastically alter water quality, out-compete native species for food and habitat and to plug pipes, pumps, and concrete structures throughout the C-BT system including Carter Lake and Horsetooth Reservoir and the proposed Windy Gap Firming Project (WGFP). Damage from these organisms in other parts of the country is well documented. In addition to water quality and environmental impacts, these invasive mussels have the potential to obstruct and interfere with water delivery, drinking water treatment and electric power generation in the communities served by the C-BT system. Hence, quagga and zebra mussels are a particular concern to both the City and Platte River. Platte River pumps Horsetooth water through approximately 20 miles of pipeline to its Rawhide Energy Station. This water is subsequently treated for potable use as well as for steam generation. Should invasive mussels interfere with normal pumping operations through the pipeline, or subsequent water treatment or power generation systems at Rawhide, there could be significant adverse environmental, public health and socio-economic impacts to both Platte River and the region. Horsetooth Reservoir also serves as the sole drinking water supply for the Rawhide Energy Station and the Spring Canyon Water District and a primary water supply for both the Tri-District Water Treatment Facility and the Cities of Greeley and Fort Collins. In parallel with the Platte River pipeline concerns, should invasive mussels interfere with water conveyance or treatment of Horsetooth water, there could be significant adverse environmental, public health and socio-economic impacts to the City and the region. Neither the Windy Gap Firming DIES or Lake and Reservoir Water Quality Technical Report mention either the discovery or potential adverse impacts of these invasive species in the C-BT system. There is no analysis or discussion of whether or not the WGFP will make the	

Com-ment	Letter #220	Response
4	WGFP DEIS Comments December 4, 2008 Page 5 invasive mussel problem worse in the C-BT system. The Bureau cannot defer analysis of the invasive mussel issue on electric power generation or municipal water supplies or consideration of effective steps that will need to be taken to avoid, minimize the harm, or otherwise effectively mitigate the potential health risks, socio-economic or environmental damage from these invasive mussels.	
5	**Mitigation.** The proposed mitigation measures for water quality effects (as presented on page 3-129 of the DEIS) do not include any specific measures to address the potential water quality concerns related to the use of Horsetooth Reservoir as a municipal water supply. Existing TOC, geosmin, manganese and other pollutant levels in Horsetooth Reservoir serve as the current standard and bellwethers of future degradation. The Municipal Subdistrict of the Northern Colorado Water Conservancy District (NCWCD) must commit to future funding of the ongoing Horsetooth Reservoir monitoring program currently being conducted by the NCWCD. In addition, Subdistrict-funded monitoring must be expanded to included quagga and zebra veliger monitoring using methods and test frequencies sufficient to protect downstream water uses. Since neither the NCWCD nor the Bureau has any experience in providing municipal water treatment services or complying with safe drinking water regulations, the City must be an active participant in the development, design, review, and approval of any monitoring or mitigation plans. The City requests that the Bureau address these concerns to insure that the City's drinking water supplies are not impacted or appropriate mitigation is provided. If you have any questions, please contact me or Kevin Gertig with the Utilities at (970) 221-6637. Sincerely, Brian Janonis, P.E. Utilities Executive Director CC: Mr. Chandler J. Peter Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128-6901	5. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, would reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP would not exacerbate the algae and clarity problem in Shadow Mountain reservoir and Grand Lake. This mitigation is expected to result in no increase in nutrients and corresponding levels of algae that contribute to TOC in the C-BT system, including Horsetooth Reservoir. Thus, there would be negligible change in the quality of water delivered to Horsetooth Reservoir with implementation of West Slope mitigation measures.

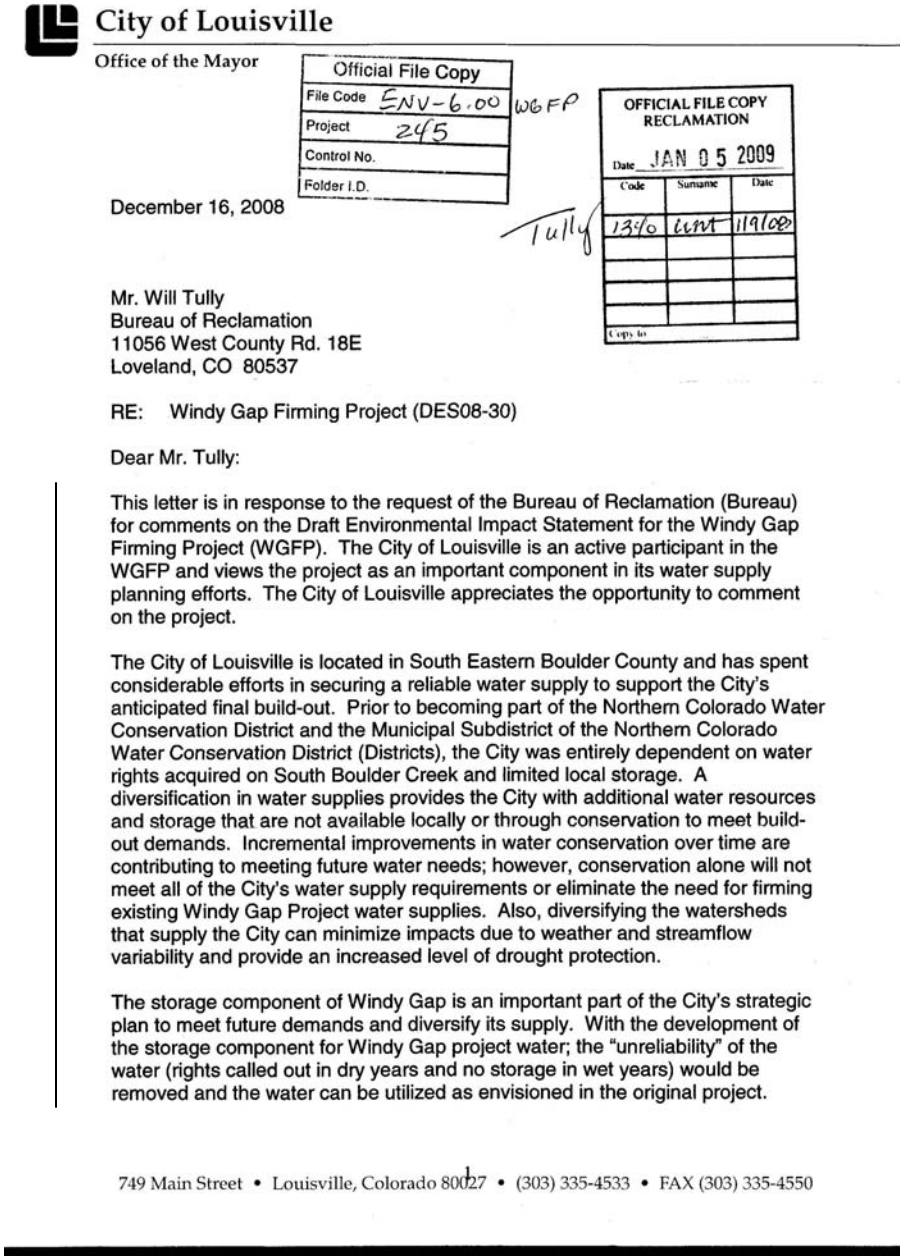
Com-ment	Letter #358	Response
1	WGFP 358 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Rick Bendel MR. BENDEL (PH): My name is Rick Bendel (ph). I'm here on behalf of the City of Fort Lupton tonight. The City of Fort Lupton is a participant in the Windy Gap Firming Project. It's a small community of about 7500 people in southwest Weld County. It's a pretty small player in the water-rights business. And as a small player, it's very difficult for small players to develop their own storage. That's the kind of thing that works better in a regional project. It's very important to Fort Lupton to be involved as a team player in a regional project that's benefitting a lot of water users. It's the kind of thing that most of our water-supply planning in Colorado tries to encourage coordination of water projects rather than a fragmentation. The Windy Gap Firming Project does that for these 13 water providers and does a pretty good job of that. The City of Fort Lupton's water supply consists of rights including local agricultural rights, groundwater, CBT project water, and Windy Gap. Windy Gap water is a key component to the City of Fort Lupton, and, therefore, firming the yield of the Windy Gap project is a key to Fort Lupton's future water supply or present water supply. It's a key because, in addition to providing clean, high-quality water for our citizens to drink, it unlocks the use of groundwater for Fort Lupton. Fort Lupton uses groundwater and ditch water, raw water, for irrigation of its parks, public open spaces, schools, also on a golf course. We also use groundwater to serve the largest water user in the City of Fort Lupton, an electrical power generating plant. But in order to use groundwater, you need to have something called a "plan for augmentation" so it uses other water rights to compensate for the use of groundwater. And Windy Gap water, after it is first used by all of the citizens of Fort Lupton, is reused by taking the wastewater and using it to augment groundwater use. So Windy Gap water is used very efficiently in the City of Fort Lupton, as are our other supplies.	1. Thank you for your comment.

Com-ment	Letter #358	Response
1	And that reuse for augmentation is a key component of all of our future water-supply planning in the City of Fort Lupton. And that is why Windy Gap is one of the keys to Fort Lupton's future water supply. Fort Lupton has, as documented in the draft EIS, shows Fort Lupton with very-low-water-per-capita water use; it reuses Windy Gap water and uses it efficiently and properly; uses groundwater and ditch rights for its non-potable irrigation needs; saves its high-quality, expensive CBT and Windy Gap first-use water for the potable water needs of the system -- all the things you would want a city to do before reaching out to another basin to import more water to help support its growth. We're faced with a demographic tidal wave in southwestern Weld County. We're growing very rapidly down there. Like a lot of other places in Colorado, we in Fort Lupton are looking at potential doubling of population in the next 25 or 30 years. And we have to reach out to a lot of sources in order to provide a water supply for that growing population. It's a small component, but, as I mentioned, a key one in Fort Lupton planning. The Windy Gap project is an existing project that doesn't involve new facilities here in Grand County. It's another plus for the times when you consider some of the alternative projects that are out there and other ways to get additional water. The Windy Gap project actually is not -- does not have conditional water rights. It has absolute water rights, final water rights. But Fort Lupton is using its water efficiently. It is acquiring water rights locally. It needs the Windy Gap Firming Project to firm up a key linchpin of the city system, and that is why it is essential to the future of the City of Fort Lupton, and we urge you to approve the project. Thank you very much.	

Com-ment	Letter #362	Response
1	WGFP 362 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Ed Clark MR. CLARK: My name is Ed Clark, C-l-a-r-k, and I'm the mayor of the City of Greeley. And I would just request that all my supporters hold their applause. I have enjoyed my drive up here today. I want you to know that people along the Front Range respect and appreciate natural resources and the conservation of natural resources, but we also are a growing state along the Front Range. Greeley just celebrated, last year, 100 years of bringing high-quality water to the residents of Greeley. And one of our first ordinances with regards to water was actually to have even-and-odd irrigation, crop irrigation, days way back when. And in 2003, we looked at a water master plan. And part of that master plan -- can everybody hear me? Part of that master plan was to go with what we have now and maximize its benefits. I only have a few quick talking points, and they will go fast. As the birthplace for the CBT, Greeley has always had a complex relationship with our Western Slope neighbors. Greeley can appreciate West Slope's passion of such an important resource as water. As such, Greeley supports the negotiating package offered to Middle Park Water Conservancy District in Grand County last month that would help firm their water supplies and make additional water available for flow enhancement of the Colorado River. Greeley is progressive, with strong agrarian roots that understands the delicate balance of managing the land and our water. That doesn't mean, however, that Greeley can't do more to be wise stewards of our precious natural resources. The city council, led by the mayor, is challenging staff to evaluate and recommend growth policies that will balance the use of that natural resources, such as water, and still provide a healthy economy and a quality of life. As such, Greeley is currently updating its comprehensive plan. Greeley's historic growth rates could very easily become the size of Aurora. They are projecting 250,000 people by 2050. The new comprehensive plan will provide guidance on new ways for Greeley to manage its growth. Furthermore, the Greeley Water and Sewer Board will be given an opportunity in	1. Thank you for your comment.

Com-ment	Letter #362	Response
1	November to adopt an aggressive new water conservation plan to reduce the need for new water beyond 2050. Even with additional conservation savings and the new growth policies, Greeley clearly has a need for the Windy Gap Firming Project, and it's only six percent -- it's only six percent of our water portfolio come 2050. But it's very, very important, because water clearly is a finite resource. Knowing Windy Gap Firming is only a small piece of Greeley's overall water needs, Greeley is actively building low-impact gravel pits, aggressively conserving water, continuing to build non-potable infrastructure, and reusing nearly all of the available water. These projects are just a few examples of Greeley's long history of maximizing its precious resources. Greeley is great from the ground up. The Windy Gap Firming Project is just one piece of the overall strategy to keep Greeley a great place to live, work and do business. I am here today because I represent the 94,300 people that call Greeley home, and it's important because we all know water is clearly important to us. We're going to be smart. We're going to be fiscally and environmentally responsible with our supplies. It is for these reasons that I urge the Bureau of Reclamation and the Corps of Engineers to issue a record of decision approving Windy Gap Firming Project. Thank you.	

Com-ment	Letter #415	Response
1	WGFP 415 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 Ken Huson MR. HUSON: Good evening, gentlemen. My name is Ken Huson. I'm the Water Resources Administrator for the City of Longmont, and I'd like to thank you for the opportunity to appear before you tonight and talk a little bit about the Windy Gap Firming Project. As you're aware, the City of Longmont is a participant in the Windy Gap Firming Project. And has utilized the Windy Gap project for a number of years now, both as its current direct flow and applications as well as planning for the eventual construction of a firming project for our proportionate share in that project. Just a little bit of history. Longmont has been in the Windy Gap project since its first formulation. In fact, our former mayor, Ralph Price, went over to Hot Springs and filed the original Windy Gap application in water court for the project. We've been a strong proponent of that project since then, and have integrated it into our system and continue to utilize that as an integral part of our system. One of the things I'd like to kind of highlight tonight is the fact that Longmont has done a couple of things in the area of both conservation and reuse of water that we feel is fairly unique and probably one of the front-runners in that area. In our Longmont -- about every 10 years, we complete all of our master plan to look at what we need to do to both project our future demand and our future supplies, outline our projects, and try to plan for those. In our last roll-out master plan, one of the things Longmont did was consciously put in this water conservation as a water supply strategy. So not only has Longmont for years practiced water conservation but we're actually planning on that as part of our water supply. And it is one of the largest aspects of our future water supply. So we certainly -- I personally, as well as the City of Longmont, am committed to water conservation, because the importance that it plays in our plan and, quite honestly, without it, you know, we would have to amend our planning for the future. The other area is the reuse of water. Longmont is very proactive in utilizing the water that it has reuse rights on. We have reached in some of the more recent years over 90 percent reuse of our reusable effluent water. We feel that's -- probably not a lot of areas can point that out as not only a goal that they have, but also an accomplishment that they have done. So we don't take lightly either the conservation or the reuse areas and work very hard to see that those are happening. That being said, Longmont does have firm plans for its growth area. We have good estimates on the water we will need. And Windy Gap Firming Project fits in very, very closely with what one of the projects we need. There are other projects we'll need if -- if we can't do the Windy Gap Firming Project, it won't mean we'll use less Windy Gap water. In fact, Longmont -- ever since the project was originally conceived and built, Longmont has always known that we've needed to build storage for this project. Everybody was aware of the time it takes to build projects and to build storage, so we've been looking at what it would take to do this project and a number of other projects. We have other concurrent projects going on at the same time. So were it not to happen, we've identified in the EIS other projects we would do. So from Longmont's standpoint, we really -- there won't be additional West Slope impacts because we're going to need the water and we're going to need the storage and we'll go forward with that. So I appreciate your time tonight and I would urge continuation of this project, and thank you.	1. Thank you for your comment.

Comment	Letter #1091	Response
1		1. Thank you for your comment.

City of Louisville

Office of the Mayor

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December 16, 2008

Mr. Will Tully
Bureau of Reclamation
11056 West County Rd. 18E
Loveland, CO 80537

RE: Windy Gap Firming Project (DES08-30)

Dear Mr. Tully:

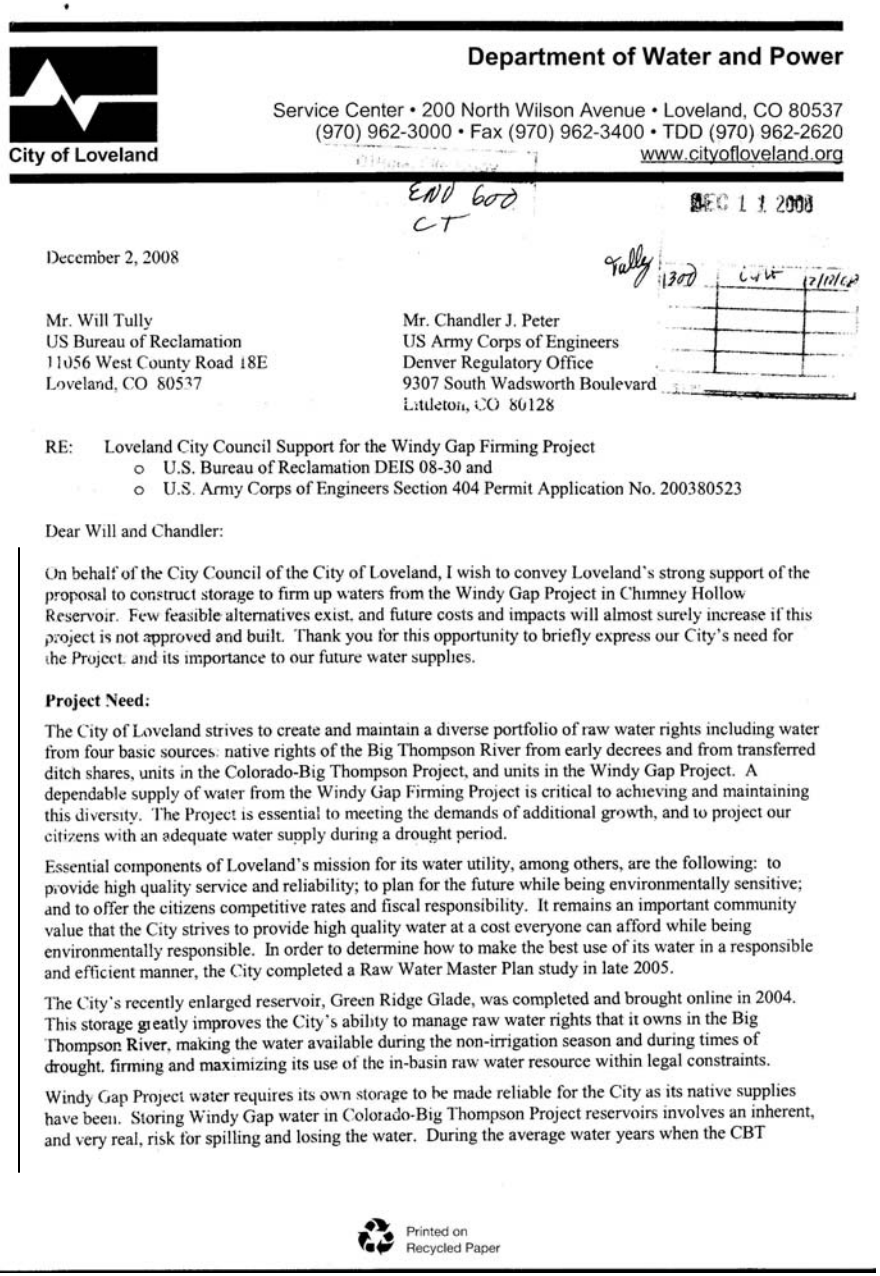
This letter is in response to the request of the Bureau of Reclamation (Bureau) for comments on the Draft Environmental Impact Statement for the Windy Gap Firming Project (WGFP). The City of Louisville is an active participant in the WGFP and views the project as an important component in its water supply planning efforts. The City of Louisville appreciates the opportunity to comment on the project.

The City of Louisville is located in South Eastern Boulder County and has spent considerable efforts in securing a reliable water supply to support the City's anticipated final build-out. Prior to becoming part of the Northern Colorado Water Conservation District and the Municipal Subdistrict of the Northern Colorado Water Conservation District (Districts), the City was entirely dependent on water rights acquired on South Boulder Creek and limited local storage. A diversification in water supplies provides the City with additional water resources and storage that are not available locally or through conservation to meet build-out demands. Incremental improvements in water conservation over time are contributing to meeting future water needs; however, conservation alone will not meet all of the City's water supply requirements or eliminate the need for firming existing Windy Gap Project water supplies. Also, diversifying the watersheds that supply the City can minimize impacts due to weather and streamflow variability and provide an increased level of drought protection.

The storage component of Windy Gap is an important part of the City's strategic plan to meet future demands and diversify its supply. With the development of the storage component for Windy Gap project water; the "unreliability" of the water (rights called out in dry years and no storage in wet years) would be removed and the water can be utilized as envisioned in the original project.

749 Main Street • Louisville, Colorado 80027 • (303) 335-4533 • FAX (303) 335-4550

Com-ment	Letter #1091	Response
1	Without storage the firm yield of the project, for planning purposes, is zero. While the project water will continue to be used without firming, it will become necessary for Louisville to find the lost firm yield elsewhere. The additional yield would likely come at the expense of agriculture and the environment. The Windy Gap Firming Project will efficiently utilize a limited resource, whereas the No Action Alternative would result in the valuable resource being used less productively. The No Action Alternative, while having a slightly smaller impact on the West Slope, does not leave more water in the streams it just results in participants acquiring addition firm yield to protect against years that Windy Gap firming water is unavailable. The project's Proposed Action, Chimney Hollow with prepositioning, allows the participants to fully utilize the Windy Gap Project in a cooperative, environmentally sound, and efficient manner. The proximity to existing facilities of this alternative will minimize new infrastructure that would be needed for some of the other alternatives. The Chimney Hollow site also provides additional recreational opportunities for citizens from participating entities and others. The City of Louisville believes that the Proposed Action would best meet the needs of the participants while minimizing any environmental impacts. The City of Louisville is a strong supporter of the Windy Gap Firming Project. The reliability (firm yield) that the project would provide by storage is an important component of the City's water supply planning. The regional, cooperative nature of the project makes it an efficient, cost-effective and environmentally sensitive project. The project allows participants, including entities from both the West Slope and the Front Range, to fully utilize an existing water project to meet current and future demands. Sincerely, Chuck Sisk, Mayor City of Louisville 2	

Com-ment	Letter #232	Response
1		1. Thank you for your comment.

Department of Water and Power

City of Loveland

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December 2, 2008

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US Bureau of Reclamation
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Mr. Chandler J. Peter
US Army Corps of Engineers
Denver Regulatory Office
9307 South Wadsworth Boulevard
Littleton, CO 80128

RE: Loveland City Council Support for the Windy Gap Firming Project
- U.S. Bureau of Reclamation DEIS 08-30 and
- U.S. Army Corps of Engineers Section 404 Permit Application No. 200380523

Dear Will and Chandler:

On behalf of the City Council of the City of Loveland, I wish to convey Loveland's strong support of the proposal to construct storage to firm up waters from the Windy Gap Project in Chimney Hollow Reservoir. Few feasible alternatives exist, and future costs and impacts will almost surely increase if this project is not approved and built. Thank you for this opportunity to briefly express our City's need for the Project, and its importance to our future water supplies.

Project Need:

The City of Loveland strives to create and maintain a diverse portfolio of raw water rights including water from four basic sources: native rights of the Big Thompson River from early decrees and from transferred ditch shares, units in the Colorado-Big Thompson Project, and units in the Windy Gap Project. A dependable supply of water from the Windy Gap Firming Project is critical to achieving and maintaining this diversity. The Project is essential to meeting the demands of additional growth, and to project our citizens with an adequate water supply during a drought period.

Essential components of Loveland's mission for its water utility, among others, are the following: to provide high quality service and reliability; to plan for the future while being environmentally sensitive; and to offer the citizens competitive rates and fiscal responsibility. It remains an important community value that the City strives to provide high quality water at a cost everyone can afford while being environmentally responsible. In order to determine how to make the best use of its water in a responsible and efficient manner, the City completed a Raw Water Master Plan study in late 2005.

The City's recently enlarged reservoir, Green Ridge Glade, was completed and brought online in 2004. This storage greatly improves the City's ability to manage raw water rights that it owns in the Big Thompson River, making the water available during the non-irrigation season and during times of drought, firming and maximizing its use of the in-basin raw water resource within legal constraints.

Windy Gap Project water requires its own storage to be made reliable for the City as its native supplies have been. Storing Windy Gap water in Colorado-Big Thompson Project reservoirs involves an inherent, and very real, risk for spilling and losing the water. During the average water years when the CBT

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Com-ment	Letter #232	Response
1	system fills, stored Windy Gap water is the first to spill from storage and be lost. A regional firming project, such as is proposed at Chimney Hollow in the Draft Environmental Impact Statement (DEIS), will allow the Windy Gap water to be made firm so that it is available during drought or whenever it is needed by its owners. **Conservation:** Loveland implemented conservation measures almost from the founding of its water utility in 1887. Records show watering restrictions were implemented in 1893. One of the most effective water conservation measures was its City-initiated, utility-wide metering program in 1979. Water service meters were installed on all services by 1981, years earlier than most other municipalities in the state, and the City moved from a flat monthly billing rate to a uniform rate per thousand gallons. This resulted in a permanent 20% reduction in consumption and 25% reduction in maximum day use on a per capita basis. The City of Loveland's per capita water use remains low. Customers demonstrated their commitment to conserving water by reducing gallons per capita day (gpcd) consumption by 16% between 2000 and 2006. The City's residential gpcd value in 2006 was actually lower than comparable values for Aurora, Boulder, and Denver Water according to staff analysis and information from other entities. Loveland prefers an effective educational approach for implementing and requesting conservation measures over imposing an increasing block rate structure as some interests around the state have advocated. Education was and remains a key component of the City's water conservation measures. Loveland widely promotes the importance of water conservation with information to its customers to enhance efficient water use patterns. This is done on a regular basis, primarily with inserts in utility bills, broadcasts through the local community access cable channel, the City's website, and the local newspaper. The City also participates with community outreach efforts such as speaking to various civic groups, making presentations at local schools, participating in Loveland's annual Children's Water Festival, and educating teachers through Project WET (Water Education for Teachers.) Loveland encourages developers to plant low-water use plants and has recently created a voluntary xeriscape program. The incentives include a reduced water rights requirement and reduced system impact fees. To participate in the program, a landscape plan with hydrozones and estimated water requirements must be submitted for approval. The landscape must reduce water use by twenty-five percent or more to qualify for the incentives. Another successful outreach has been the City's "Garden in a Box" program. This is a convenient, non-intimidating way for customers to purchase xeric plants complete with a landscape plan of where to place the plants for visual effectiveness. Customers can choose from one of three options for the "Garden in a Box" then pay online and pick up the plants at the water utility office. The pick-up is timed early in the spring to customers have ample time to plant prior to the heat of the summer. The City has two dedicated xeriscape demonstration gardens, one located at City Hall and another located at the Loveland Water and Power offices. Public parks have areas of xeric plantings. The public parks and right-of-way areas are examined to determine the most appropriate type of planting or surface with an eye toward conserving water. Awareness of the value of proper soil amendment has been heightened. Soil amendment requirements, as well as a plant list of desired xeric plants, are now an important part of the City's site development performance standards and guidelines. **Mitigation:** At the public hearing on October 7, 2008, some comments were directed to the need for project participants to mitigate effects of the project by doing something for the Western Slope. In response, please allow me to reiterate the following known facts:	

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1	• The Municipal Subdistrict legally holds ownership of the water rights and is "playing by the rules" within Colorado's prior appropriation system. • In the 1980's, the Municipal Subdistrict paid $11.5 million in compensatory mitigation to develop West Slope water storage, to fund diversion and water quality improvements, and to support endangered species recovery. Of that amount, payment of $10.2 million went to the Colorado River Water Conservation District and was used to help construct Wolford Mountain Reservoir. • Other non-monetary compensation included minimum streamflow commitments on the Colorado River and 3,000 acre-feet of water made available from the Windy Gap Project each year pumping occurs, available to the Middle Park Water Conservancy District. • Outstanding mitigation considerations remain for the impacts caused by actual reservoir construction. The impacts of the dam and reservoir footprint on the selected site should appropriately be considered. Significant West Slope mitigation has been provided in anticipation of the project. **Importance:** What happens if a Windy Gap Firming Project is not approved and built? Alternatives are discussed in the DEIS, but the specific implications for Loveland are serious: • The City's future firm yield would be reduced by over 2,500 acre-feet. Meeting the demands of additional growth, and protecting our citizens with an adequate water supply during a drought period are tasks that would still have to be accomplished. • Loveland would very likely have to search for individual storage to make firm the Windy Gap water it already owns. However, a search is currently underway by the City for a site to store native waters from the Big Thompson River, and few feasible alternatives exist. Future costs would be driven up dramatically. • Loveland would necessarily consider the use of water from other sources, which could include additional water from the CBT system, additional transfers of water from surrounding agricultural uses, and additional individual storage capacity for native water. Such storage would be required to make agricultural supplies available to meet year around demands and during drought. We heartily encourage those weighing this permit proposal to allow the Windy Gap Firming Project to move forward as proposed. We believe the Chimney Hollow alternative represents a reasonable, environmentally responsible, and economically feasible solution that works well for all parties. We have successfully implemented water conservation strategies, and our City's gallons per capita per day (gpcd) rates are low. A storage project for Windy Gap Project water has been anticipated for many years, and the proposed project is best for the future well-being not only of Loveland, but of the Northern Colorado Region and our state. Thank you for your consideration. Sincerely, Gene Pielin, Mayor City of Loveland cc: Ralph Mullinix, Director, Loveland Water and Power Eric Wilkinson, General Manager, Municipal Subdistrict/NCWCD	

Com-ment	Letter #1114	Response
1	WGFP 1114 COLORADO HOUSE OF REPRESENTATIVES STATE CAPITOL DENVER 80203 OFFICIAL FILE CO RECLAMATION Date DEC 2 2 200 Code Surname 1340 Tully Copy to 1004, 1000 1002, 1005, 13 December 19, 2008 Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 Official File Copy File Code ENV-6.00 Contact 245 Control No. Folder I.D Dear Mr. Tully, I am writing to express my concerns with the Windy Gap Firming Project ("WGFP") Draft Environmental Impact Statement ("DEIS"). My district includes Summit County, Eagle County and Lake County. Members of my district have expressed to me some of their concerns with the DEIS. I share their concerns and I appreciate the opportunity to point out a few of those here. We all acknowledge that water is our most precious resource, and that the majority of the State's water supply is on the west slope, while the majority of the population is on the east slope. When transmountain diversions first began they seemed a logical solution to water supply shortages on the east slope. There was more than enough water on the west slope to meet the needs of its population and continue to comply with the Colorado River Compact. However, this is no longer the case. West slope streams have become increasing stressed by transmountain diversions causing significant harm to aquatic life and damaging the overall health of our mountain streams. Additionally, populations on the west slope continue to grow at a rapid rate due mostly to the success of the tourism industry, and it is important to ensure those communities have an adequate water supply as well. As has been said many times over, we need to find ways to meet the water supply needs on the east slope while protecting the quality of life our mountain communities provide. We have a rare opportunity to do just that with the WGFP. Eagle County is currently in the process of developing a stream management plan with a similar goal in mind as Grand County's Stream Management Plan. These communities are taking it upon themselves to assess the current status of their streams (which are impacted already by various transbasin diversions) and to evaluate the flows needed to ensure they can meet the needs of their growing populations while protecting the health of the stream. Grand County in particular is finding ways to protect their streams while still providing the water needed for the WGFP and 1	1. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. While WGFP mitigation measures may contribute to meeting some of the goals of Grand County's SMP, the WGFP and SMP have different objectives. However, mitigation measures included in the FEIS may help meet some of the goals of the SMP.

Com-ment	Letter #1114	Response
1	the Moffat Expansion Project. They should be commended for their diligence in protecting our mountain streams, and the final EIS should include their Stream Management Plan as mitigation for the impacts of WGFP.	2. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP.
2	Additionally, I feel the Bureau could take a closer look at the cumulative impacts of the WGFP and the Moffat Expansion Project. These projects could lead to a significant amount of water being taken out of the headwaters of the Colorado River. We need to have a clear understanding of how the two projects would affect the headwaters if they were brought online, and how they would compound the impacts caused by current transmountain diversions in the area.	
3	The DEIS also needs to provide a more detailed description of the impacts from past and current projects already impacting the Upper Colorado River basin. There was an attempt to do this in the DEIS, but it did not go far enough. The DEIS needs to provide detailed information on the effects of reduced streamflows – on aquatic life, on the environment, on recreation, on agriculture and on the ability for Grand County to provide water to its residents and visitors.	3. The Affected Environment section of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Other sections in the EIS provide discussions on the existing condition and status of the various resources. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make a reasonable comparison of the impacts of each of the alternatives. The same is true for other resources. Both the DEIS and FEIS provide extensive discussion of the effects of the proposed action on aquatic life, recreation, and agriculture. The proposed WGFP will not affect the ability of Grand County to provide water to its residents and visitors as discussed in Section 1.4.2.3 of the DEIS and FEIS.
4	I would also like to see the Study Area in the DEIS be extended at the very least to Dotsero. Stream depletions will occur below the Kremmling gauge, compounding current diversions in that stretch of the Colorado River. My district and I understand that most of the impacts will occur above Kremmling, however, we fail when we don't start to look at how projects affect the bigger picture. When it comes to water, we can no longer ignore the way in which impacts to one community leads to impacts in another. Eagle County is faced with their growth and water supply issues, along with the potential of the development of a large reservoir that could completely change the way water is moved in the Upper Colorado River. The DEIS needs to evaluate Upper Colorado River basin as a whole and identify those impacts that could occur if the project goes online.	4. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects from the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. Regarding future potential projects downstream of Kremmling, see Section 2.8.2 of the FEIS and Section 8.1 of the Water Resources Technical Report (ERO and Boyle 2007) for a discussion of the criteria for identifying reasonably foreseeable actions.
5	It's my understanding that every WGFP participant has a water conservation plan in place. I'm curious if the Bureau measured the effectiveness of their water conservation plans. Being a State Legislator, I've seen communities with extensive water conservation plans that truly are doing all they can do to conserve water, while others do the minimal amount necessary to claim they have a conservation plan. We should ensure that any Front Range water provider seeking to use west slope water to meet their water supply needs has the most stringent and measureable water conservation plan in place. Additionally, participants should be required, to the maximum extent feasible, to implement reuse programs and make successive use of the foreign water.	
	I realize the National Environmental Policy Act process is daunting, and I want to commend the Bureau of Reclamation for their time and efforts in putting together the WGFP DEIS. I feel the allowance for public input is an important component of the overall process and hope you find these comments useful. Please feel free to contact me if you have any questions regarding my comments.	
	Sincerely, Representative Christine Scanlan	
	2	

Com-ment	Letter #1114	Response
		5. Reclamation did not review the effectiveness of each plan. We believe that is more properly the role of the Colorado Water Conservation Board as required by the Water Conservation Act of 2004. In the EIS, water use rates (measured in gallons per capita per day) are evaluated and compared to regional values. Section 1.6.2.3 and Section 1.7 of the FEIS contain updated information on the status of Participant conservation measures. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Maintaining a state-approved water conservation plan would be a condition of any contract agreement with the Subdistrict.

Comment	Letter #1058	Response

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STATE OF COLORADO

Bill Ritter, Jr., Governor
DEPARTMENT OF NATURAL RESOURCES

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AN EQUAL OPPORTUNITY EMPLOYER

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Tully

COLORADO DIVISION OF WILDLIFE
For Wildlife-For People

December 29, 2008

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Project 245
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Will Tully
Bureau of Reclamation
11056 West County Rd. 18E
Loveland, CO 80537

Mr. Tully,

Thank you for the opportunity to evaluate the proposed Windy Gap Firming Project. We have reviewed the Windy Gap Firming Project (WGFP) Draft Environmental Impact Statement (DEIS) and have the following comments. Alternative 1 (No Action) has the least negative impacts on wildlife. We have also provided other mitigation recommendations in the event the Bureau selects a different alternative. The impacts of the WGFP must be considered in the context of current conditions on impacted streams which have resulted from the larger CB-T project.

The Colorado River through Grand County offers a highly valuable public fishery resource. It is nationally known as a quality trout stream and provides significant economic value to a rural area. We believe the CB-T Project has had dramatic impacts on the Colorado River since being built. In 1981, the trout population in the Kemp-Breeze State Wildlife area near Parshall included 89 trout per acre longer than 14 inches. In 2007, the estimate for the same reach of river was 21 trout per acre longer than 14 inches. This data supports the popular notion among the angling public that the quality of fishing on this reach of river has steadily declined since the construction of the Windy Gap project. We understand that Senate Document 80 originally enabled the development of the project. However, that document also stated that the project was "to preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and Rocky Mountain National Park." We feel that the existing project has decreased the recreational fishery value of the Colorado River by limiting fish population biomass and numbers principally through: reduced aquatic insect production; exacerbating whirling disease and diatom blooms; and reduced flows inadequate for channel maintenance and sediment transport which result in elevated water temperatures in portions of the Colorado River.

1 In 1987 whirling disease was detected in the river. The density of the whirling disease pathogen in the Colorado River immediately below Windy Gap has been among the highest ever observed in the state. CDOW aquatic researchers found that the proliferation of the disease, which eliminated natural recruitment and thus decimated the rainbow trout population, was greatly exacerbated by the presence of Windy Gap Reservoir.

2 Based on multiple studies discussed below, we now know that the minimum flows that were established by the Azure Settlement Agreement of June 23, 1980, are inappropriate for maintaining aquatic resource integrity and are often not even met. Minimum flows in place for the section of the river between Granby reservoir and Windy Gap are even more inappropriate. These statements are supported by multiple documents and studies, dating as far back as 1951 with the report entitled "Recreational Use and Water

Response

1. We are aware of the whirling disease studies that were conducted in Windy Gap Reservoir and downstream of Windy Gap Reservoir in the Colorado River. Mr. Barry Nehring, CDPW researcher, was contacted and asked if the whirling disease pathogens were still at a problematic level as they had been in the past. The quote from Mr. Nehring is presented in the FEIS. In addition, Mr. Jon Ewert presented information regarding the current status of the fishery in the Colorado River to Denver Water and Northern on July 14, 2009. During that presentation, questions were raised again about the presence of whirling disease in Windy Gap Reservoir. Mr. Ewert reiterated that whirling disease is still present, but there appears to be a shift in the species of tubifex worms present in the reservoir. The current species are not the carriers of whirling disease in the same number as previously sampled in Windy Gap Reservoir.

2

Requirements of the Colorado River Fishery Below Granby Dam," sponsored by the U.S. Bureau of Reclamation and prepared by the U.S. Fish and Wildlife Service. We have conducted electrofishing surveys in various parts of the river during periods of minimum flow and observed significant sections with extremely high width-to-depth ratios, which are devoid of adult fish. At minimum flows these specific river reaches become unusable to adult fish. The same 1951 report also prescribes appropriate flows to maintain the aquatic resources below Granby Dam. The flows delineated in the 1951 report correspond with the flows recommended in the Grand County Stream Management plan. After more than 50 years and many advances in the science of river geomorphology and hydrology, the conclusions are still the same: there is not enough water in the main stem of the Colorado River to maintain aquatic resources over the long term.

The minimum flows currently in place on the river were determined from limited data which was collected when the original Windy Gap project was imminent. Grand County has invested significant resources in recent years to study appropriate flows in the river with the most current available science. This is the most thorough study of stream morphology that has been conducted in this area to date. CDOW expects to be party to renegotiation of those minimum flows as a condition of the mitigation plan which will be developed pursuant to 37-60-122.2, Colorado Revised Statutes. We view the Grand County Stream Management Plan as a critical document in determining the future condition of the upper Colorado River. Its conclusions regarding appropriate flows support our observations of the fish population. We recommend that this document be taken into consideration when assessing the impacts of the WGFP, the Moffat firming project, and the cumulative effects of both projects.

3

Among the many insights contained in the 1951 report referenced above, is a description of food organisms available to trout in the section of the Colorado River between Granby Reservoir and the Fraser River confluence. There is an observation that large stoneflies, locally known as "willow flies," belonging to the genus *Pteronarcys*, "emerged in tremendous numbers during the last week in June and the first week in July." Currently, the willow fly hatch is not reliable at all anywhere upstream from Kremmling. It does appear sporadically, but not reliably, in some years as far upstream as Hot Sulphur Springs. For the hatch to appear above Windy Gap Reservoir is virtually unheard of since the closure of the Granby dam. We believe that the reduction in this important trout food and famous insect hatch is directly related to the unnaturally low flows now occurring in the system.

4

Under current conditions, the Colorado River between Windy Gap and the Williams Fork confluence frequently fails to meet state temperature standards established by the Colorado Water Quality Control Commission. These high temperatures usually occur in August when flows have dropped to near base level and nighttime air temperatures remain high. In 2008, which was not a particularly hot summer and when the river enjoyed relatively good flows, there were four days (August 6-9) in which temperatures in the river (measured at the County Road 3 bridge) failed to meet the chronic temperature standards contained in state regulations. In 2007, a more typical year, water temperatures failed to meet this standard for 32 consecutive days (July 25 – August 25). We suspect that certain population parameters such as the declining number of quality-size trout may be tied to these high temperature/low-flow occasions. There is no question that these events do increase the level of stress that the fish populations must endure.

5

The proliferation of the diatom *Didymosphenia geminata* ("Didymo") has been observed throughout this same river reach. This nonnative organism has the potential to permanently alter processes such as nutrient cycling, food web dynamics and invertebrate production in waters where it is established. It often forms "nuisance blooms" which consist of dense benthic mats which can entirely cover the substrate of a river channel. Didymo appears to thrive in streams with regulated flow regimes and an inverse relationship has been observed between the proliferation of the diatom and the frequency of channel maintenance flows. A further reduction in the frequency of channel maintenance flows which accomplish

2

A report by Thompson (2005) indicates the percent myxospore in brown trout for several rivers in Colorado (Thompson 2005, *Whirling Disease/Habitat Interactions, Federal Aid Project F-427-R2, Federal Aid in Fish and Wildlife Restoration Job Progress Report*, CDOW, Fish Research Section, Fort Collins, Colorado, May 2005). Thompson reported that the percent prevalence of myxospores in brown trout in the Fryingpan River, and Spring Creek in the Taylor River drainage were as high or higher than downstream from Windy Gap Reservoir. The objective of the study was to determine the response of whirling disease to habitat modification. At the time of that research, it did not appear that habitat modification resulted in a marked reduction in the prevalence of whirling disease myxospores.

2. There are no documented instances of the Windy Gap Project not meeting the bypass requirements of the Azure Agreement and the agreement between the Subdistrict and the Colorado Division of Wildlife dated June 23, 1980. The purpose of the WGFP EIS is to disclose the anticipated effects of the proposed WGFP, not evaluate the effects of the C-BT Project. The WGFP primarily would impact flows below the Windy Gap Reservoir diversion. The WGFP would only affect flows immediately below Granby Reservoir as a result of reduced spills in wet years. Below Windy Gap Reservoir, flushing flows would remain adequate to transport fine sediment in the Colorado River study area under the alternatives, as shown in Table 3-32 of the FEIS and as indicated in response to Comment No. 1.

The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS such as reductions in nutrient loadings to the Colorado River and Three Lakes and measures developed in the Fish and Wildlife Mitigation Plan would help meet some of the goals of the SMP.

The SMP was not a study of stream morphology, but rather, as stated in the first sentence of the SMP, a presentation of "the analyses and recommendations of preferred flow regimes for streams and rivers in Grand County, Colorado, to support stream health for aquatic habitat and other non-consumptive uses." The SMP states that "the magnitude of each flushing flow is based upon bedload transport modeling to identify the threshold flow at which spawning gravel mobilization is initiated." However, the modeling used particle sizes much larger

		than fine sediment. It is the finer particles, 2 mm or less, that may fill between the larger gravels and bury fish habitat. The SMP also states that "the recommended flushing flows are based on [modeling] and are not yet supported by empirical evidence of gravel mobilization." Considerable empirical data collected by Ward for his 1981 study and in 2008 by Miller Ecological have resulted in the conclusion that 450 cfs would be sufficient to transport fine sediments and prevent aggradation. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) includes an increase in flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. The instream flow study conducted for the SMP by consultants to Grand County used a standard one-dimensional model that was state-of-the-art in the 1980s and 1990s. The current preferred approach is a two-dimensional hydrodynamic model, which was used for the WGFP EIS. Further, the flows recommended in the Grand County SMP were based only on the Weighted Usable Area curve without consideration of whether those flows would be available in either natural or regulated conditions. A habitat time series is the recommended technique to determine appropriate flows or to compare changes in habitat from changes in flow regimes (Bovee 1982). A habitat time series was conducted for the WGFP EIS. 3. The WGFP has limited impact and no control on flows above Windy Gap Reservoir. Under the WGFP, the potential for spill from Granby Reservoir would decrease. The EIS evaluated the projected change from the existing conditions, if the WGFP is implemented, and current infrastructure, including Windy Gap Reservoir and Granby Reservoir. A wide variety of changes have occurred in the upper Colorado River since the 1950s. These changes are the result of a number of factors, including land use changes from increased human development in the basin, agricultural and municipal diversions, increased wastewater discharge, and nonpoint source contributions. Benthic macroinvertebrate data were collected for the EIS. Those data are presented in the FEIS and the Aquatic Resource Technical Report (Miller Ecological 2007). 4. Additional mitigation measures were defined and developed to reduce the potential impacts from implementation of the Proposed Action from those present in the DEIS. Mitigation measures and the effectiveness of those measures are described in the FEIS. An updated summary of mitigation measures also is included in Section 3.25. These measures, along with others included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict in concert with the CDPW will address project impacts, including mitigation of temperature effects in

		the Colorado River. 5. Didymo naturally occurs in northern or mountainous regions of Europe, Asia, and North America (Kilroy et al. 2008), but even within its native range, there have been reports of excessive growth in areas where previously it existed only at low concentrations. Unfortunately, there is a lack of basic biological and ecological knowledge for this organism (Spaulding and Elwell 2007). It thrives under a wide range of freshwater conditions – both hydrological and chemical (Spaulding and Elwell 2007), although it is commonly reported that Didymo prefers streams with low phosphorus and low mean discharge (Miller et al. 2009; Kirkwood et al. 2007). Spaulding and Elwell (2007) found no relation between water velocity and visual biovolume indices. In a recent study, Miller et al. (2009), reported a decrease in abundance in Boulder Creek, Colorado after a 3-day rain event, which suggested that larger flows could reduce its growth. However, the level of abundance was restored within a week and, therefore, the impact was not long lasting. Given the lack of understanding regarding the factors that influence Didymo, it is very difficult to predict how the WGFP might impact its growth. It may be true that a decline in the frequency of channel maintenance flows may cause an increase in abundance, but the evidence that the magnitude of flow reductions associated with the alternatives would cause a significant lasting impact is lacking. It could be that currently the flows are below the threshold required to dislodge the algae. If this is the case, less flow would not result in more Didymo. Unfortunately, the required flows have not been quantified for practical use. As discussed in Section 3.7 of the FEIS, sediment transport capacity would remain adequate under all the alternatives. In addition, a slight increase in phosphorus might provide less desirable conditions for growth.

5 sediment transport in the upper Colorado River due to project operation will likely exacerbate this situation and lead to further negative fish and aquatic invertebrate population impacts.

6 The DEIS recommended alternatives are likely to cause further decline in the number of quality size trout and threaten the Gold Medal status (at least 12 fish longer than 14 inches per acre) of this reach of the Colorado River.

Flow Related Issues – West Slope

7 We know that the Moffat Firming Project includes plans to increase water diversions from the Fraser River during runoff flows, which will coincide with plans to increase water diversions by the WGFP. The flow projections and analysis contained in the DEIS for the Colorado River below Windy Gap do not account for the implementation of the Moffat Firming Project, for which a DEIS is expected to be released in the near future. As a result, the analysis of impacts to the aquatic environment contained in the WGFP DEIS for that portion of the Colorado River are minimal since the two projects together present a major cumulative impact.

8 We are concerned that the descriptions of the WGFP DEIS existing conditions overstate the water diversions. On table ES-2 and table 2-6, existing average annual Windy Gap diversions are stated as 36,532 acre-feet of water. The average annual diversion through Windy Gap Reservoir from the inception of the project has been 13,829 AF. In the 23 years that Windy Gap has operated, the volume of diversions has met or exceeded the figure of 36,532 AF in only three of those years. To use this figure as an Existing Condition in the document seems misleading, and it minimizes the potential impacts of additional diversions by excessively lowering the baseline. In addition to the concerns stated above, this also calls into question all the stated impacts analyzed in this document.

9 Figure 3-13 in the DEIS depicts average daily flows in the Colorado River below Windy Gap under each alternative. The drop in peak flow from current conditions to the proposed alternative is significant. Through the work reported in the Grand County Stream Management Plan, we know that the annual high flow required for channel maintenance and sediment transport is at least 750 cubic feet per second (CFS) and possibly as high as 1,200 CFS. Recent, but as yet unpublished, work conducted on this section of river will refine these maintenance and sediment transport flow calculations. The drop in peak flows depicted in Figure 3-13 could very well represent a large reduction in the frequency of channel maintenance flows. The situation becomes more serious when considering that this flow information does not take into account Moffat Firming Project diversions.

10 Under all the alternatives (including No Action), the river will see slight decreases in average flow during August, and because of the close relationship between flow and water temperatures, we anticipate an exacerbation of high temperatures in this reach. Increasing the frequency and duration of these high water temperature occurrences will only increase the likelihood of negative population-level impacts. Figure 3-38 in the DEIS illustrates the large contribution to high temperatures that Windy Gap Reservoir makes during a period of diversion. Further increases in stream temperatures caused by the WGFP will increase the likelihood of this reach of the Colorado being listed as impaired by the Colorado Water Quality Control Commission.

3

6. Comment noted. Mitigation measures in the Fish and Wildlife Mitigation Plan developed in accordance with the requirements of CRS 37-60-122.2 should address this issue. An updated summary of mitigation measures also is included in Section 3.25.

7. The DEIS and FEIS both include the hydrologic impacts of the Moffat Project and other reasonably foreseeable actions. See Surface Water Hydrology—Section 3.5.3 for cumulative effects and Aquatic Resources—Section 3.9.3 for cumulative effects. The methods used to assess direct effects were the same for cumulative effects.

8. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were estimated based on the project's existing water rights, which are the same water rights that would be used to effect diversions after the WGFP is constructed. Recent diversions represent the Participants' need for water to meet water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Estimated Windy Gap diversions used in the model reflect recent Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 (since Granby Reservoir last filled) averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, Reclamation believes that estimated pumping under existing conditions is accurate.

The comment indicates that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.

		In summary, the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 9. Colorado River peak flows are estimated to decrease about 200 cfs on average from 1,050 cfs to 850 cfs from existing conditions to the Proposed Action. Peak flows under the Proposed Action would still be within the range of flushing flows reported in the Grand County Stream Management Plan (SMP). The Grand County SMP did not define channel maintenance flows, rather the environmental flows or flushing flows presented in the SMP were defined as flows that are determined to best maintain the ecological needs of the stream in relation to its fisheries. The previous study completed for the original Windy Gap Project of bed materials and movement for this reach of the Colorado River concluded that a flushing flow of 450 cfs below the Windy Gap Reservoir for 50 hours during the period from April 1 through June 30 every 3 years should be sufficient to transport fine sediments and prevent aggradation (Ward 1981). See also the result of the recent shear stress analysis described in response to Comment No. 2. The reduction in the frequency of channel maintenance flows was analyzed for the WGFP EIS. Both the WGFP and Moffat Project would divert additional water primarily in wet years; therefore, there would be little effect on the frequency that channel maintenance flows occur. Figure 3-27 in the FEIS provides average daily flows in the Colorado River below Windy Gap for each alternative with reasonably foreseeable actions, which includes the Moffat Project. Section 3.7 of the FEIS provides several analyses of effects to stream morphology and sediment transport. The conclusion is that sufficient high flows would still occur under the alternatives to maintain channel capacity, provide periodic scouring, and transport sediment. See also response to Comment No. 2, which describes the increased flushing flows included in the Fish and Wildlife Mitigation Plan.

Flow Related Issues – East Slope

11 East Slope impacts to fisheries are not as detrimental. Impacts of water delivery downstream of Chimney Hollow are still being studied; our understanding is there would be moderate changes in flow regime in some Front Range creeks in order to deliver this water. Alternative 1 identifies increasing the size of Ralph Price Reservoir (Buttonrock). This would have limited impact on the North Saint Vrain River as the increased water would only be in the river channel for 2 miles below the dam and not impact the sensitive native species area downstream of Lyons. The lake currently is and would continue to be most suitable for rainbow trout, brown trout and splake, though a reservoir enlargement may allow the addition of kokanee salmon.

12 The DEIS states that "The Subdistrict would coordinate with the CDOW to establish a sport fishery in Chimney Hollow Reservoir. CDOW would be responsible for the establishment and management of the fishery." The CDOW welcomes the opportunity to establish a new public access fishery which would use similar species as in Ralph Price Reservoir, but with that comes some concerns. Our hatchery system cannot currently support increased production for an additional reservoir on the Front Range. We will address this more specifically in the mitigation section.

13 We recommend consultation with Larimer County Parks regarding boating recreation on Chimney Hollow Reservoir. A wakeless speed rule rather than a restriction on size or motor type will increase safety and allow boaters to exit the water efficiently if emergency conditions arise.

Terrestrial Resources

14 The Chimney Hollow and Dry Creek Valleys, located in the hogback west of Carter Lake are similar in topography, hydrology, vegetation, and land use. Both sites are relatively undisturbed and are therefore increasingly important for wildlife in light of the intense development on surrounding lands. Interspersion of escarpments, ponderosa pine woodlands, native grasslands, foothills shrub lands and riparian habitat on these parcels creates ideal habitat for many species. Of the two sites Chimney Hollow offers the best overall habitat and interspersion for wildlife. Both sites are listed in the report as overall and summer range for mule deer with winter concentration areas in near proximity. Both sites are also listed as winter range for elk. However with shifting patterns in land use in surrounding areas coupled with impacts due to several years of drought at the turn of the century, these valleys have assumed increasing importance for deer and especially elk during the last several years. Elk herds that once wintered in the Mariano Buttes area to the northeast of Carter Lake and from sites west of Chimney Hollow now tend to winter out in these hogback valleys, as their former wintering sites have dwindled due to development or change in plant stands and quality caused by drought. During our last winter aerial count CDOW biologists counted approximately 200 elk in the Chimney Hollow Valley. Chimney Hollow and Dry Creek now provide one of the last places in this area where elk and deer can forage without being disturbed by human activity and threats by automobiles year around. Because of relatively intense use by ungulates these valleys in all likelihood provide high quality habitat for mountain lions. Both sites are also designated in the technical report as being located within black bear fall concentration areas. With increasing conflict between bears and humans caused by development pressure in southern Larimer County it is essential to maintain intact, high quality bear habitat. These valleys offer the best of the best for black bears bulking up for winter hibernation. Both valleys also provide potential habitat for northern leopard frogs, and common garter snakes, both of which are designated as species of concern. Inundation of one or both of these valleys would result in loss of habitat and would likely force elk, deer, lions and bears to adjacent areas with lower forage value, higher opportunity for conflict with humans and increased chance of becoming victims to road strikes feral dogs and other calamities that occur when wildlife are forced into compromised habitat. Alternative 1 would have the least impact on high quality habitat for terrestrial species in the Chimney Hollow, Dry Creek, Jasper East and Rockwell Mueller sites.

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10. Typically Windy Gap diversions late in the runoff season would only occur in wet years when there is no Shoshone call and flows exceed minimum streamflow requirements below Windy Gap. Higher flows during those months typically occur due to rain events, in which case water temperatures would likely be lower than average. The Fish and Wildlife Mitigation Plan required by CRS 37-60-122.2 addresses adverse temperature effects downstream of the Windy Gap diversion.

11. Delivery of WGFP water on the East Slope under the action alternatives would use existing C-BT canals and the Southern Water Supply Pipeline. Changes in East Slope streamflow for several streams would be the result of increases in effluent discharges below Participant wastewater treatment plants as water use increases over time. The discussion of potential fish species in Ralph Price Reservoir was added to the FEIS in Section 3.9.2.

12. Additional coordination between the CDPW, Subdistrict, and Larimer County, who would be managing Chimney Hollow Reservoir, is needed prior to reservoir construction to discuss establishment of a fishery. This may be a component of the Recreation Management Plan that Larimer County would prepare during reservoir construction. Mitigation for any adverse effects on terrestrial species is included in the Fish and Wildlife Mitigation Plan developed in accordance with CRS 37-60-122.2.

13. This is also a management measure that will be discussed with Larimer County and CDPW as part of the Recreation Management Plan.

14. Many of the issues identified in this comment are addressed in the DEIS. New and updated information has been added to Section 3.12.1.7 of the FEIS. Because of the importance of the Chimney Hollow area as wildlife habitat, the Subdistrict, in concert with CDPW, developed a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2.

14 Expansion of Ralph Price Reservoir, a steep banked mountain reservoir surrounded predominantly by coniferous woodlands, would have a less significant impact on terrestrial wildlife habitat than creation of new reservoirs at the alternative sites.

15 The DEIS states that development near the proposed Jasper East reservoir site is around 3005 acres; it is inconclusive if this includes the Orvis-Shorefox property which is 1500 acres. Combining this with the development of the reservoir would affect 1.5% of the elk winter range in Game Management Unit (GMU) 18 and 1.2% of the moose winter range in GMU 18. The creation of Rockwell/Mueller would be even greater. Rockwell/Mueller has approximately 4770 acres of future development combined with the creation of the reservoir would impact approximately 5105 acres of wildlife habitat. Approximately 3173 acres would be elk winter range. The effects to elk winter range would be approximately 4.1% of the elk winter range in GMU 18. These are large landscape impacts that are within the foreseeable future. While the DEIS quantifies the acreage lost per alternative based on species activity maps, it does not mention cumulative effects of what losing 24 acres of elk winter range if Jasper East was constructed except for "elk movement could shift." Jasper East construction will likely impact elk movement from Rocky Mountain National Park and Grand Lake to the riparian areas around the Colorado River/Fraser River junction. What the scope of this impact or shift in movement patterns will be is hard to say. Elk could move west to cross 125 to get to Dexter Ridge or they could cross highway 34 to get to the Bussey Hill area. Either way, the general shift in movement will most likely cause increased vehicular problems along highway 34, which the DEIS largely ignores. Likewise, construction of Rockwell/Mueller could displace elk from that property onto Grand Elk Golf Course or onto adjoining private property in the area increasing game damage conflicts.

16 Management of the proposed Jasper East and Rockwell/Mueller reservoirs is not addressed. If built, public access should be allowed to provide recreational opportunities (hunting, fishing, and watchable wildlife). Currently, Windy Gap Reservoir provides watchable wildlife opportunities without traditional hunting and fishing access. Fencing as is present at Windy Gap limits free movement of many species of wildlife.

17 There are a number of potential impacts from the proposed West Slope reservoirs to Greater Sage-Grouse (GrSG). As a point of clarification this species was removed as a candidate for federal listing in January 2005. However, since that time a ruling found the 2005, 12-month finding to be arbitrary and capricious under the Administrative Procedures Act. The GrSG is undergoing another 12-month status review that should be completed by early 2009. To also clarify another statement in the DEIS regarding the abundance of GrSG in Grand County we recommend using the following statement; "Sage grouse are uncommon in east Grand and common in west Grand." The Executive summary states that about 300 acres of GrSG habitat will be lost if Rockwell/Mueller reservoir is built. This accounts for 5% of GrSG habitat in the area and surrounding the Linke Lek. The accumulative loss of 740 acres of GrSG habitat accounts for over 12% of the GrSG habitat surrounding the Linke Lek. As stated in Table 2-7 on page 2-72, this loss of habitat could result in the complete loss of GrSG from the area. We also add that in 2008 the CDOW counted no sage grouse on the Linke Lek and a total of 9 grouse (3 males and 6 females) in an area we are calling the Horn West Lek.

18 Decrease in water flow will directly impact terrestrial species such as beaver, mink and river otter in the area. River otter is a Colorado state Threatened Species and a species of concern because of its relationship to healthy aquatic environments. Reduced flows and fish abundance will have a negative impact on otters. It has been documented that river otters are sensitive to water quality and that poor water quality and habitat can inhibit otter movement through a particular stretch of river and thereby affect the gene flow by isolating a group of animals. River otters currently inhabit all areas of river habitat surveyed in Grand County. Diminished flows below Windy Gap could preclude movement of river otters through that stretch of the river. Boreal toad is a state endangered species. There is suitable

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15. The cumulative impacts assessment includes the C-Lazy-U Preserve and Orvis-Shorefox property highlighted in Figure 2.15 of the FEIS. New and updated information provided in this comment about wildlife-vehicle collisions and game damage conflicts has been added to Section 3.12.2.6 and 3.12.2.7 of the FEIS.

16. As provided in the description of this alternative, there is currently no defined recreation plans for the Jasper East and Rockwell/Mueller reservoirs. They are not part of the proposed action.

17. Reclamation will comply fully with the requirements of the Endangered Species Act as necessary. New and updated information pertaining to the federal status of the greater sage grouse has been added to Section 3.12.1.4 of the FEIS. Updated information pertaining to the cumulative effects to greater sage grouse has been added to Section 3.12.3 of the FEIS.

18. Several mitigation measures to offset water quality impacts are identified in the FEIS to minimize the adverse effects of the WGFP on water quality in the Three lakes system. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River. The FEIS includes information on potential impacts to otters. Preconstruction surveys for boreal toads in suitable habitat that would be affected by construction of a new West Slope reservoir would be conducted.

18 habitat for boreal toads near Granby, but they have not been documented to occur there. Extensive surveys should occur before any new reservoir construction occurs.

Mitigation

19 We understand the Bureau will be developing mitigation strategies as part of the EIS process, and the Division looks forward to working cooperatively on a mitigation plan pursuant to 37-60-122.2, Colorado Revised Statutes. We offer general guidance on mitigation strategies that may be employed to mitigate impacts that we have identified. We believe that highest priority for any mitigation must be placed on improving flows below Windy Gap, and secondarily improving flows below Granby Reservoir. We are aware of ongoing discussions regarding water rights in the Red Top Ditch above Shadow Mountain Reservoir. If the WGFP is implemented, this water could be stored in Granby Reservoir and used to increase Colorado River flows.

20 To adequately protect aquatic resources, flows should be maintained that sustain minimum temperature standards. This may require installation of one or an array of real-time temperature gauges on the Colorado River. Data collection to date has been informative but delayed in nature due to the fact that the data must be retrieved in the field from electronic logging devices after it has been collected. Because of this, it is not immediately apparent when the river has exceeded chronic temperature standards. Real-time temperature sensors would enable managers to know immediately when temperature standards are exceeded, and arrange for releases of flow mitigation water from Granby dam.

21 There are locations in the Colorado River within the project area where width-depth ratios are extremely high at low flows. Some of these sites appear to have potential for large-scale in-stream habitat projects to reduce the width-depth ratio. These potential projects could also increase habitat availability for larger trout and enhance the carrying capacity of the river for quality-sized fish.

22 The idea of a complete bypass of Windy Gap Reservoir while pumping is not occurring has been discussed in the past and should continue to be considered, as this would remove many possible deleterious effects of Windy Gap Reservoir such as increases in temperature and nutrient loading.

23 Mitigation offered for numerous proposed water projects on the Front Range include fishing recreation days. Conceptually, this is beneficial and we support it as a mitigation option. However, because these types of reservoirs do not sustain significant fish reproduction, there is a significant underlying need which must be addressed - the source and cost of the fish which will need to be stocked to provide this mitigating fishing recreation. The Division's hatcheries, even as currently supplemented by some federally stocked fish, are not always capable of meeting the numbers of fish needed to stock waters currently open for fishing.

There are a number of proposed water projects currently under consideration in Colorado including Windy Gap, Glade Reservoir, the enlargement of Chatfield, Halligan and Seaman Reservoirs in the South Platte Basin and the Southern Delivery System in the Arkansas River Basin. If these water projects are added to the acres of water the Division currently stocks to support public fisheries, our current hatchery infrastructure cannot produce enough fish to meet the required stocking necessary to create or maintain sport fishing opportunities. This is probably not a traditional view of cumulative effects, but if fishing recreation benefit is going to be proposed as mitigation for water development, mitigation needs to provide for the production of the necessary fish. These costs can be broken down into two categories: production facilities and ongoing production. The recognition that this is a cost of the project and the mitigation plan is not new to Colorado. The Division's Pueblo hatchery was constructed as partial mitigation for the Fryingpan-Arkansas project. In addition, long term operation of hatcheries to produce fish required is a much larger cost, and this requires funding the Division cannot provide alone. We

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19. As mentioned previously the purpose of the WGFP EIS is to disclose the effects of the WGFP and identify appropriate mitigation measure to avoid or minimize adverse effects. The Subdistrict with assistance from the CDPW prepared a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2.

20. Real time temperature monitoring stations would be installed in the Colorado River below Windy Gap Reservoir and above the confluence with Williams Fork as discussed in the Fish and Wildlife Mitigation Plan and FEIS Section 3.8.4 Water Quality mitigation.

21. The Fish and Wildlife Enhancement Plans developed by the Subdistrict and Denver Water include provisions for habitat enhancement below Windy Gap Reservoir.

22. CDPW has previously determined that a bypass flow channel is not needed. CDPW research (Thompson 2005) also indicates a separate channel may not reduce the presence of whirling disease. Habitat modification has not resulted in the reduction of the prevalence of the myxospores as hypothesized. Proposed nutrient and temperature mitigation measures previously described are expected to provide a greater benefit to reducing temperature and nutrient concentrations than a bypass channel. However, the Subdistrict's Fish and Wildlife Enhancement Plan includes funding for studies to evaluate constructing a bypass channel at Windy Gap Reservoir.

23. See response to Comment No. 13.

23 propose that all water projects provide capital construction and operation funds either for current state hatcheries capable of expanding or for the purchase, construction and operation of new hatchery space to meet these fish production needs.

24 Public fishing access on rivers is limited in the area of eastern Grand County. Any increase in stream mileage that is open to public fishing would have great benefits. We recommend that acquisition of new public fishing access on rivers in Grand County be considered as part of project mitigation.

25 There is no mention of any sort of mitigation action for loss of big game habitat. If one of alternatives 2-5 is selected for development, CDOW would recommend significant mitigation measures be incorporated in the development plan and construction of this project in an effort to reduce negative impacts to essential wildlife habitat inundated by the WGFP. The only mention of habitat is the bullet point "a variety of BMPs will be implemented…and protect or avoid important wildlife habitat". Cumulatively there is approximately 3000 acres of foreseeable development on winter range with the Jasper East alternative and well over 5000 acres of foreseeable development with the Rockwell/Mueller alternative.

During the critical fall and winter the Chimney Hollow and Dry Creek valleys should have restricted human use. Creation of reservoirs and year around recreation at these sites would make this crucial area for wildlife less attractive for deer, elk and bears, and force them into alternative sites that are already developed. Recreation tends to slow in fall and winter and there are currently alternative sites for hikers, bikers and anglers to use nearby. Fishery management for the reservoir/s created by this project could emphasize species maximally available in spring and summer. Development of reservoirs in these valleys with subsequent recreational development should be accomplished in a manner that provides adequate protection for golden eagle nest sites and other raptor use areas. CDOW suggests you refer to our recommended guidelines for setback and seasonal disturbance for raptors at this web site: ftp://wildnet/documents/WL%20Conservation/Raptors/CDOW%20Raptor%20Buffer%20Guidelines%2002_2008.pdf

Sites in and around any of the newly created reservoirs should remain open for hunting. Harvest of deer, elk, bear and lion is an integral component in successful management of those species. If necessary CDOW could assist in developing mechanisms for limited hunting that could successfully achieve harvest goals while protecting public safety.

In closing we would like to thank you for the opportunity to comment on your project proposal and represent wildlife in your evaluation. We look forward to hearing from you as you prepare for the next step in this process.

Sincerely,

Thomas E. Remington

Thomas E. Remington
Director

Cc: Konishi, Ver Steeg, Velarde, Yamashita, Gerlich, Kahn

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24. One purpose of the WGFP EIS is to identify appropriate mitigation for the adverse effects of the WGFP. Mitigation for the fish and wildlife effects of the proposed project are included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict with assistance from the CDPW in accordance with the requirements of CRS 37-60-122.2.

25. The Fish and Wildlife Mitigation Plan prepared by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 includes appropriate mitigation for the effects of the WGFP on fish and wildlife resources.

Com-ment	Letter #403	Response
1	WGFP 403 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Al White MR. WHITE: I'm Al White. I'm the state representative from House District 57. W-h-i-t-e. I represent the 60,000 citizens of northwest Colorado in Grand, Jackson, Moffat, Rio Blanco and Garfield Counties. For 36 years, I have been a resident of northwestern Colorado. For eight years, I sat on the Grand County Water and Sanitation District before I ran for office. And you know what? I'm mad as hell, and I'm not going to take it anymore. I mean, you know what? We have been pushed around by the federal government, we have been pushed around by Northern, we have been pushed around by Denver Water for as long as I've been here. And now we have a proposal from Northern -- and I'm not going to be critical of you guys, of your entities. I'm not trying to be critical of Northern. But how ludicrous is it to suggest that we are going to firm up this conditional right and that there will be no additional damage to any water users in northwest Colorado? It's just unimaginable to me. And, beyond that, we have Denver Water, who is going to stand in line behind it. And, by the way, none of you can vote for me in the next election, so I'm not pandering to any of you. I'm a private citizen here, and I'm upset, as I know all of you are. Yeah, we've got a lot of problems with EIS. We've got cumulative impacts that we've heard about, and we've got water quality impacts. We got clarity impacts to Grand Lake. We got socioeconomic impacts that we haven't discussed that aren't even brought up here. But the reality is, we are faced with a decision of: Do we cut off our nose, or do we cut off our ear? No action hurts us; action hurts us. What do we do? Where do we go? I think, obviously, we need to extend the comment period. But in the state legislature -- I serve on the Water Resources Review Committee -- we consider legislation. We always talk statewide water policy. Well, any statewide water policy has got to offer a win-win situation. Where is the win for Grand County in	1. Windy Gap water rights were made absolute in Case No. 89CW298, which awarded absolute water rights to pump 600 cfs from the Windy Gap Pump Canal and also confirmed the volumetric diversion limits as an integral part of the decree. The FEIS discloses a number of impacts from the proposed WGFP and identifies mitigation measures to avoid or minimize adverse effects. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS. The comment period was extended until December 28, 2008.

Com-ment	Letter #403	Response
1	this, Northern? I don't get it. And you talk about a project that's going to pump 200,000 acre-feet from northwestern Colorado, and you suggest to us that that will reduce your need for additional diversions in western Colorado. Well, let's start here. Let's look down the road and do that other diversion and give up on this firming project. Honestly, I don't know how we in Grand County or western Colorado come out ahead on this situation. Until the rest of the state understands how they need to benefit us before they can ask us to share our additional water, we'll never have a statewide water policy.	

Comment	Letter #1150	Response

ite Representative
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WGFP 1150

Member:
Agriculture, Livestock, & Natural Resources Comm
Capital Development Committee
Appropriations Committee

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STATE CAPITOL
DENVER
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File Code ENV 5 (WGP) (Tully)
Project 245
Contract No.
Folder I.D.

January 14, 2009

Will Tully
Bureau of Reclamation
11056 West County Rd. 18E
Loveland, CO 80537

Dear Mr. Tully,

Water storage is so important in our semi-arid state.

1 But no regional water projects have been built to hold water for northeastern Colorado's use since the 1980s. That's a bit disconcerting when you look at all the growth we have experienced during the past two decades and especially worrisome when you consider all the predicted growth that is yet to come.

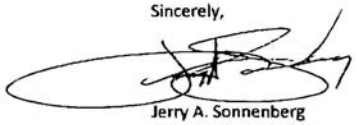
We have so many needs for water in our growing state: municipal, agricultural, recreational, environmental. Developing new water projects is crucial to helping us meet those needs.

Fortunately, there are a couple proposed projects right now that will provide storage for the region. One of those projects is the Windy Gap Firming Project.

The Windy Gap Firming Project will help complete an existing project called the Windy Gap Project, which was constructed in the 1980s. The proposal for the Windy Gap Firming Project includes a new reservoir in Larimer County, which will provide a lot of great recreational opportunities.

It seems to me that the Windy Gap Firming Project is the right kind of water project for Colorado. It takes a regional, collaborative approach to securing the water supplies our region desperately needs. The dozen water providers proposing to build the Windy Gap

1. Thank you for your comment.

Com-ment	Letter #1150	Response
1	Firming Project could have each decided to build their own water storage. Instead, they came together to make this project a reality, and that means fewer environmental impacts and a smaller overall price tag. Water from Windy Gap, and the Windy Gap Firming Project when built, can be recycled and reused by water providers. Reuse is really important as Colorado tries to maximize use of our limited water supplies. As our state's population has increased, we've built new schools and new roads and new hospitals. It's time we realize that new water projects are just as important and support efforts like the Windy Gap Firming Project. Sincerely,  Jerry A. Sonnenberg State Representative	

Com-ment	Letter #1062	Response
1	WGFP 1062 **Colorado River District** *Protecting Western Colorado Water Since 1937* December 29, 2008 *VIA E-MAIL and U.S. Mail* Mr. Will Tully United States Bureau of Reclamation, Eastern Colorado Area Office 11056 West County Road 18E Loveland, CO 80537-9711 wtully@gp.usbr.gov Mr. Chandler J. Peter U.S. Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 chandler.j.peter@usace.army.mil Re: Windy Gap Firming Project Draft Environmental Impact Statement and Associated Application for a Clean Water Act Section 404 Permit Dear Mr. Tully and Mr. Peter: This letter contains the comments of the Colorado River District on the Windy Gap Firming Project (WGFP) Draft Environmental Impact Statement (DEIS) and the related Clean Water Act Section 404 permit application. The River District's primary comments are summarized below: 1. The DEIS is fundamentally flawed because (a) the Purpose and Need Statement is too narrow, (b) the No Action Alternative is speculative, and (c) the DEIS understates the actual difference between existing conditions and the Proposed Action ("PA"). The DEIS therefore does not accurately portray the impacts of the PA or other alternatives. 2. The DEIS does not adequately analyze the cumulative impacts on stream flows, aquatic resources and water quality caused by the PA and Denver Water's proposed Moffat System Project. 201 Centennial Street / PO Box 1120 * Glenwood Springs, CO 81602 (970) 945-8522 *(970) 945-8799 Fax www.ColoradoRiverDistrict.org	1. These comments are addressed in detail below.

Com-ment	Letter #1062	Response
1	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 2 3. Even though the DEIS understates the adverse impacts of the PA (and all action alternatives), the DEIS fails to adequately identify and analyze reasonable mitigation measures for the adverse impacts that are identified in the DEIS. 4. The PA conflicts with Senate Document 80. 5. The DEIS fails to reconcile conflicts between the PA and the C-BT Project authorization, C-BT Project water rights, and other federal law. 6. The DEIS fails to reconcile conflicts between the PA and the existing permits, water rights, and agreements related to the Windy Gap Project. 7. No Section 404 Permit should be issued for the PA because the DEIS fails to demonstrate that the PA is the least damaging practicable alternative. **I. Background** A. Colorado River Water Conservation District. The Colorado River Water Conservation District (River District) is a political subdivision of the state of Colorado, created pursuant to C.R.S. § 37-46-101, *et seq.* The River District is comprised of all or parts of 15 western Colorado counties within the drainage basin of the Colorado River and its principal tributaries, including the Yampa, White and Gunnison Rivers. The River District was formed for the purpose of the conservation, use and development of the water resources of the Colorado River Basin for the benefit of all of the inhabitants of the district. The River District also is charged with safeguarding Colorado's entitlement to water under the Colorado River Compact. B. History of the C-BT Project and Windy Gap Project. The C-BT Project was authorized by Congress in 1937.[1] The authorizing legislation requires that the C-BT Project be constructed and operated in conformance with the feasibility report submitted to Congress – commonly referred to as Senate Document 80.[2] Senate Document 80 also [1] *See* Act of August 9, 1937, 50 Stat 564, 595 (1937). [2] *Id.* (Senate Document 80 is formally entitled *Synopsis of Report on Colorado-Big Thompson Project, Plan of Development and Cost Estimate prepared by the Bureau of Reclamation, Department of the Interior, 75th Congress, First Session, June 15, 1937.* Copy attached to these comments as Exhibit A.	

Com-ment	Letter #1062	Response

operates as a contract between the United States, acting through the Bureau of Reclamation ("USBR" or "Reclamation"), and the West Slope and Front Range parties affected by the C-BT Project. Senate Document 80 has the force and effect of a federal statute.[3]

Operation of the C-BT Project is also governed by the Blue River Decree.[4] Senate Document 80 requires that the C-BT Project be operated "in a fair and efficient manner equitable to all parties having interests therein."[5] The USBR is required to operate the C-BT Project in accordance with the terms of Senate Document 80, and in accordance with the USBR's role as "a trustee responsible for protection of the West Slope interests" in the C-BT Project.[6] The River District is an expressly recognized beneficiary of the C-BT Project and is a party to the Blue River Decree.

The Windy Gap Project is a non-federal project sponsored by the Municipal Subdistrict of the Northern Colorado Water Conservancy District that relies on the C-BT Project for storage, conveyance and delivery of West Slope water to Colorado's northern Front Range. The project is comprised of a small reservoir with a large pumping plant and pipeline, located on the Colorado River (downstream of the C-BT Project collection facilities) in Grand County. Windy Gap pumps water only when: 1) its relatively junior water right is in priority; and 2) excess storage space is available in the C-BT Project's Granby Reservoir, also located in Grand County. The Municipal Subdistrict's desire to firm the yield of Windy Gap is based in large part on the fact that Windy Gap normally diverts only in average water years. In very dry years, the Windy Gap Project's junior water right is not in priority to divert. In wet years, there is little or no excess capacity available in the C-BT Project facilities to store and convey Windy Gap water.

In 1979, the Colorado Supreme Court ruled that the Municipal Subdistrict had failed to comply with the compensatory mitigation provisions of Colorado's Water Conservancy District Act in its plan to develop the Windy Gap Project because the proposed project failed to adequately protect current and prospective water users in the Colorado River Basin.[7] Following the court's decision, the Municipal Subdistrict entered into the so-called Azure Agreement with the River

[3] *See* Colorado River Storage Projects Act, 43 U.S.C. § 620j; *Public Service Company v. Federal Energy Regulatory Commission,* 754 P.2d 1555 (10th Cir. 1985).

[4] *See* Supplemental Judgment and Decree, dated February 9, 1978, in Consolidated Case Nos. 2782, 5016 and 5017, Federal District Court, District of Colorado. (The original October 12, 1955, Findings of Fact and Conclusions of Law and Final Judgment and Final Decree in Consolidated Case Nos. 2782, 5016, 5017, and all subsequent rulings are referred to herein as the Consolidated Cases or the Blue River Decree). Copy attached to these comments as Exhibit B.

[5] *See* Senate Document 80 at Page 3.

[6] *See* Supplemental Judgment and Decree, dated February 9, 1978, at pg. 2, Consolidated Cases.

[7] *See Colorado River Water Conservation District v. Municipal Subdistrict, Northern Colorado Water Conservancy District,* 198 Colo. 352, 610 P.2d 81 (1979).

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2	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 4 District, Grand County, NWCCOG, and other parties that allowed the Windy Gap Project to move forward.[8] Only after the Azure Agreement was executed did Reclamation approve the Final Environmental Statement ("FES") and issue a Record of Decision ("ROD") for the Windy Gap Project. In fact, the terms and conditions of, and the mitigation called for by, the Azure Agreement were expressly recognized and effectively incorporated into both the FES and the ROD.[9] By its own terms, the carriage contract for Windy Gap was conditioned on completion of the FES and execution of the ROD.[10] The Municipal Subdistrict has proposed a variety of means to improve the yield of the Windy Gap Project, including the pre-positioning concept contained in the PA of moving federal C-BT Project water to the proposed new, non-federal Chimney Hollow Reservoir located on the Front Range. Pre-positioning would significantly increase the volume and frequency of Windy Gap's transmountain diversions from the headwaters of the Colorado River in Grand County and would change the operation of the C-BT and Windy Gap Projects in ways not contemplated by the original agreements, authorizing documents and water right decrees for either project. **II. The DEIS is fundamentally flawed because it fails to accurately portray the impacts of the Proposed Action and the other NEPA alternatives.** A. The scope of the Purpose and Need Statement of the DEIS is so narrow that it precludes reasonable alternatives and skews the comparative impacts analysis. The Purpose and Need Statement (DEIS, Sec. 1.3) states that the overall purpose and need is to firm 30,000 acre-feet of yield of the original Windy Gap Project. This narrow statement prevents a NEPA review of other less environmentally damaging alternatives. The underlying purpose and need for the proponents of the WGFP is to enhance their overall water supply in more general terms. The additional yield required to meet the subject portion of their future water demands could be met from many different sources other than additional diversions by the Windy Gap Project, such as additional conservation, reuse, and rotational fallowing of agricultural land on the Front Range. *See* DEIS Sections 1-6, 1-7 and 1-8. [8] *See* The Azure Agreement was supplemented by the March 29, 1985 *Supplement to Agreement of April 30, 1980.* The original agreement is refereed to as the Azure Agreement; the supplemental agreement is referred to as the Supplemental Azure Agreement. Copies are attached to these comments as Exhibits C and D, respectively. [9] *See* Windy Gap Project, USBR Final Environmental Statement (FEIS 81-20), and Record of Decision, June 18, 1981. [10] *See* Article 12, Carriage Contract No. 14-06-700-7497, October 3, 1973. The original carriage contract has been amended by an Amendatory Contract, Contract No. 4-07-70-W10707, dated March 1, 1990.	2. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yields anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Existing absolute Windy Gap water rights represent an existing source of water available to the Participants. However, additional infrastructure is necessary to provide reliable deliveries. Thus, the purpose of the WGFP is to fix a broken project, not to develop new sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply, and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

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2 3 4	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 5 The narrow purpose and need statement means that all of the six alternatives considered in the DEIS (even the no action alternative) result in the diversion of additional water from the Colorado River Basin. The comparative differences of each alternatives' impact on the critical headwaters reach of the Colorado River is therefore relatively understated. Thus, the DEIS fails to adequately analyze the impacts of less environmentally damaging alternatives that would help to meet the stated demand for water. B. The No Action Alternative is speculative. To be reasonable, an alternative must be non-speculative. *See Utahans for Better Transportation v. U.S. Department of Transportation*, 305 F.3d 1152, 1172 (10th Cir. 2002). The "no action" alternative defined in the DEIS is speculative. The "no action" alternative assumes the enlargement of Longmont's Ralph-Price reservoir based merely on a statement by the City of Longmont that it might pursue such enlargement if the WGFP is not approved. *See* DEIS, Section 2.2.2. However, the DEIS fails to address the real potential that enlargement of Longmont's reservoir may be restricted or precluded by environmental requirements or economic infeasibility. In addition, the DEIS assumes that Windy Gap demands will be much higher under the no action alternative as the demand under the action alternatives because it assumes that all Windy Gap participants, not just participants in the WGFP, will seek to maximize their Windy Gap water supply. *See e.g.*, DEIS Water Resources Technical Report at 81. The result is that the DEIS artificially inflates diversions and the resulting impacts under the no action alternative while at the same time understating the difference between the impacts of a non-speculative no action alternative and the impacts of the action alternatives. C. The DEIS dramatically understates the actual difference between existing conditions and the alternatives reviewed, including the PA. The DEIS is based in part on a comparison of existing conditions, as modeled over a 1950 to 1996 study period, with the action alternatives as modeled over the same period. The existing conditions as modeled in the DEIS show an average annual diversion by the Windy Gap Project of 36,532 acre feet. *See* DEIS, Tables 3.2. However, the actual average annual Windy Gap diversions from 1985 to 2005 have been only 11,080 acre feet. The DEIS therefore overstates the actual existing conditions by more than 300% and understates the increase in future depletions by 25,452 acre feet per year. *See* Exhibit E, BBA Letter Report from Jeff Clark, dated December 23, 2008. The BBA Letter Report is incorporated into the River District's comments by this reference.	The impact on Colorado River under the action alternatives is similar because each of the alternative results in an increase in stream diversions. The No Action Alternative also increases diversions, as described in response to Comment No. 3. The EIS evaluates the impact of all of the action alternatives that would meet the project purpose and need and the No Action Alternative. 3. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connection to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For WG and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, No. 3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is a reasonable action for the City of Longmont, and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts included under the No Action alternative entail increased Windy Gap deliveries to Participants, which can currently be done without any infrastructure changes, additional authorizations, or approvals from Reclamation. It is not speculative to assume that Windy Gap diversions will increase in the future as a function of increased demand or that the No Action alternative should be no diversions. 4. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the

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		Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment indicates that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action. In summary, the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. In response to the portion of the comment that the DEIS assumes streamflows in the Upper Colorado River are significantly lower than actual stream gage measurements, it is not valid to compare modeled existing conditions at the Hot Sulphur Springs gage with historical USGS gage data at that location. That

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4	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 6 The error produced by the modeled existing conditions is compounded throughout the DEIS. *See e.g.*, DEIS, Tables 3.3. and 3.4. In addition, the DEIS assumes that stream flows in the upper Colorado River are significantly lower than the actual gaged stream flow measurements. *See* BBA Letter Report, pg. 3. The result is that the DEIS understates the difference between the actual existing conditions and the impacts of all alternatives, including the PA.	comparison is flawed for the following reasons: • Demands have changed considerably over the course of the study period, • Certain facilities and reservoir were not in operation for the entire study period, and • River administration and project operations have changed over the study period. The Windy Gap Project did not come online until 1985. Therefore, it is inaccurate to evaluate the effects of Windy Gap diversions under the alternatives based on a comparison with historical flows at Hot Sulphur Springs because they do not include the effects of the Windy Gap Project prior to 1985.
5	**III. The DEIS does not adequately analyze the cumulative impacts on stream flows, aquatic resources and water quality caused by the PA and Denver Water's proposed Moffat System Project.** CEQ regulations provide that a single EIS should be prepared for two or more projects that involve "cumulative" or "similar" actions. *40 C.F.R. § 1508.25(a)(2) and (3)*; *Klamath-Siskiyou v. BLM*, 387 F.3d 989 (9th Cir. 2004). Cumulative actions are actions that "when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." *40 C.F.R. § 1508.25(a)(2).* Similar actions are actions which "when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *40 C.F.R. § 1508.25(a)(2).* Sometimes these actions must be considered together to prevent an agency from "dividing a project into multiple 'actions,' each of which individually has an insignificant environmental impact, but which collectively have a substantial impact. *See Thomas v. Peterson,* 753 F.2d 754, 758 (9th Cir. 1985). The anticipated Moffat Tunnel Extension Project and WGFP are both "common" and "similar" actions which should be evaluated in a single EIS, particularly, in light of the fact that they affect the same aquatic resources in the same geographic region. As explained at pages 4 to 5 of the BBA Letter Report, a single EIS, using a daily time-step model is required to properly analyze the cumulative impacts of the two proposed projects.	5. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project, including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver changed their demand estimate after the hydrologic model for the WGFP was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects. Daily hydrologic data were used in the assessment of resource impacts for the WGFP.
6	**IV. Even though the DEIS understates the adverse impacts of the PA (and all action alternatives), the DEIS fails to adequately identify and analyze reasonable mitigation measures for the adverse impacts that are identified**. The DEIS Water Resources Technical Report Appendix (Table I-14) demonstrates that, even using the understated impacts inherent in the flawed DEIS, the PA would decrease flow in the Colorado River under average conditions below Windy Gap by approximately 23-27% from existing conditions. In addition, flows below Granby Reservoir will be reduced by 30% in June and 19% in July. *See* DEIS, WRTR, Table I-12. The WGFP can only legally divert water at the site of the Windy Gap pumping plant, which is located about 20 miles downstream of Granby Dam. The fact that the PA reduces flows in the Colorado River between Granby Dam and the Windy Gap pumping plant can only be attributed to changes in operation of the C-BT Project. This clearly demonstrates the impact of the PA and prepositioning on C-BT operations. The DEIS fails to address appropriate mitigation measures to offset these and other significant impacts.	6. Additional mitigation measures were defined and developed to avoid or minimize adverse effects from implementation of the Proposed Action from those presented in the DEIS. Mitigation measures were developed to correspond with projected impacts. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25. The mitigation measures in the FEIS are commitments that would be included as part of the Record of Decision.

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6	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 7 NEPA requires that mitigation measures be fully reviewed in the NEPA process. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the action-forcing function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). CEQ regulations require that the agencies include in the EIS a discussion of appropriate measures to mitigate adverse environmental impacts. *See 40 CFR §1502.14(f) and 40 CFR § 1502.16(h).* Agencies must also state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. *See 40 CFR §1505.2(c)*. Mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated. *See Carmel-By-The-Sea v. Dept. of Transportation*, 123 F.3d 1142, 1154 (9th Cir. 1997). A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA. *See Northwest Indian Cemetery Protective Association v. Peterson*, 795 F.2d 688, 697 (9th Cir. 1986). Broad generalizations and vague references to mitigation, which fails to specify whether any mitigation measures would in fact be adopted or to provide an estimate of their effectiveness or why such estimate is not possible, do not meet NEPA requirements. *See Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380-81 (9th Cir. 1998). The brief discussion of mitigation measures (*See* DEIS, Section 3.25.1) is vague, and consists of a general intent to conduct further studies of impacts to water quality and to explore limited opportunities to re-time the identified draw down of Granby Reservoir levels. The DEIS completely fails to explain how these to-be-studied suggestions for mitigation will address impacts to streamflow, aquatic, scenic and recreational resources, or how effective they will be in addressing such impacts. There is no binding commitment on Reclamation or the Municipal Subdistrict to actually implement any mitigation measure. For these reasons, the DEIS does not satisfy the applicable CEQ standards for identification and analysis of mitigation measures. The River District is committed to working with Reclamation, the Municipal Subdistrict, the Middle Park Water Conservancy District, Grand County, Northwest Colorado Council of Governments, and other entities to negotiate appropriate mitigation for any action alternative that may be adopted for the Windy Gap Firming Project.	
7	**V. The PA conflicts with Senate Document 80.** The DEIS contains only a very minimal discussion of whether the PA conflicts with the purpose of the C-BT Project and of the relationship between the proposed action and C-BT Project operations "in conformance with Senate Document 80." *See* DEIS, § 1.9.2.7. Although Reclamation briefly discusses these issues, the DEIS fails to examine whether the PA would violate Senate Document 80 and the Blue River Decree. Instead, the DEIS simply states that this determination will be made at a later time: "Prior to entering into a contract that would allow use of C-BT excess capacity, Reclamation must determine that the excess capacity contract is consistent with the provisions of Senate Document 80." *See* DEIS, § 1.10.2.	7. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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7	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 8 The primary purposes of Senate Document 80 have the force and effect of federal statute by virtue of their inclusion in the Blue River Decree, which, in turn, was incorporated into the Colorado River Storage Project Act (43 U.S.C. Sec. 620j). Senate Document 80 requires that the C-BT Project be operated: 1. To preserve the vested and future rights in irrigation. 2. To preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and the Rocky Mountain National Park. 3. To preserve the present surface elevations of the water in Grand Lake and to prevent a variation in these elevations greater than their normal fluctuations. 4. To so conserve and make use of these waters for irrigation, power, industrial development, and other purposes, as to create the greatest benefits. 5. To maintain conditions of river flow for the benefit of domestic and sanitary uses of this water.[11] Even though the DEIS understates the impacts of the PA, it does demonstrate that the impacts of the PA would be inconsistent with the Senate Document 80 primary purposes. Pumping from the Windy Gap Project into Granby Reservoir and the subsequent conveyance of that water through the C-BT Project facilities has increased sediment and nutrient loading in Grand Lake, thus exacerbating the existing water quality problems at Grand Lake (nutrient loading, sediment, and impaired clarity). *See* WQCC Clarity Standard at Grand Lake, 5 CCR 1002-33, 33.44(Q), pg. 106; DEIS Section 3.8.2.4. The PA also would decrease water quality and increase water temperatures in the Colorado River below Windy Gap. *See* DEIS Section 3.8.2.4. The DEIS states the PA will reduce the frequency, duration, flow rate, and volume of spills from Granby Reservoir. This will result in less frequent flushing flows below Granby, which are necessary to maintain the stream channel and fishery in the Colorado River.[12] Even though the DEIS understates the adverse impacts of the PA, the impacts attributable to the PA and the cumulative actions are inconsistent with Reclamation's obligation to operate the C-BT Project in accordance with Senate Document 80.	
8	**VI. The DEIS fails to reconcile conflicts between the PA and the C-BT Project authorization, C-BT Project water rights, and other federal law.** NEPA regulations require federal agencies to identify and evaluate possible conflicts between the proposed action and federal, regional, State and local laws. *See 40 CFR §§ 1502.16(c)* [11] *See* Senate Document 80 at pg. 2. [12] *See* Table D-4, pg. 24, Modeled Colorado River below Lake Granby Flows during Spill Events, Water Resources Technical Report Appendices, Windy Gap Firming Project.	8. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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8	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 9 *and 1506.2(d)*. Where an inconsistency between the proposed action and State and local laws exists, the regulations require the agencies to describe "the extent to which the agency would reconcile its proposed action with the plan or law." *See 40 CFR § 1506.2(d)*.	
9	A. Storage of C-BT Water on the Front Range is Limited to Horsetooth and Carter Lake Reservoirs. Senate Document 80 and the Blue River Decree specify Horsetooth and Carter Lake Reservoirs as the C-BT Project's primary Front Range water supply storage facilities.[13] The proposed action would allow C-BT water to be stored in Chimney Hollow, a non-federal reservoir that is not authorized by Senate Document 80 or the Blue River Decree. The only reservoirs that are authorized for storage of C-BT water on the Front Range are Mary's Lake Reservoir, Lake Estes, Horsetooth Reservoir and Carter Lake Reservoir. *See* Senate Document 80 at 18-21; Blue River Decree, Findings of Fact and Conclusions of Law at ¶ 14; Blue River Decree, Final Decree at p. 2. The Blue River Decree also specifies Horsethooth and Carter Lake Reservoirs as the United States' point of delivery of C-BT water to the Northern Colorado Water Conservancy District. *See* Blue River Decree, Findings of Fact and Conclusions of Law at ¶ 14; Final Decree at p. 2. Storage of Project water in, and the delivery of that water by the United States at, an entirely new Front Range reservoir simply was not considered in Senate Document 80 or the Blue River Decree. The plan under the PA to pre-position C-BT Project water in a new reservoir would violate Senate Document 80 and the Blue River Decree because as the DEIS demonstrates, the PA would require fundamental changes in the manner and timing in which C-BT Project water is stored in Granby Reservoir, carried under the Continental Divide, stored on the Front Range, and delivered by the United States. Furthermore, Reclamation has a trustee obligation, created by Senate Document 80, to deliver C-BT Project water for *irrigation* purposes in northeastern Colorado.[14] Reclamation does not have a similar trustee obligation for the delivery of *municipal* Windy Gap Project water. Pre-positioning would put Reclamation's trustee obligation at substantial risk because Reclamation's control over the delivery of the irrigation water would be relinquished to a non-federal project and reservoir. Likewise, Reclamation's trustee obligation to the West Slope beneficiaries of Senate Document 80 would be breached because Reclamation could not guarantee that C-BT Project water would be delivered and used in compliance with Senate Document 80. [13] *See* Senate Document 80 at pgs. 18-21; Blue River Decree, Findings of Fact and Conclusions of Law and Final Judgment at ¶ 14, pgs. 27-28. Senate Document 80 also refers to Arkins Reservoir, which was not constructed. The storage capacity of Arkins Reservoir was essentially transferred to the enlarged Horsetooth Reservoir. Smaller Front Range reservoirs were also integrated into the Project as power generation facilities. [14] *See* Order of November 2, 1977, Consolidated Cases.	9. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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9	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 10 Because C-BT water is not decreed for storage in Chimney Hollow, *see Id.*, C-BT water may only be lawfully stored in Chimney Hollow if the United States first obtains a change of water right to add Chimney Hollow as a decreed storage facility for the C-BT Project. *See* C.R.S. § 37-92-103(5) (2008) (stating that a change of water right by definition includes "a change in the place of storage, . . . [and] a change from a fixed place of storage to alternate places of storage)." The proposed action would create an additional 90,000 acre feet of storage capacity for C-BT water on the Front Range, and would therefore allow the C-BT Project to yield more water than has historically been produced through the facilities authorized by Senate Document 80 and the Blue River Decree. The DEIS apparently relies on a personal communication between the Colorado State Engineer and Reclamation's previous Area Manager to support the PA concept of pre-positioning C-BT Project water in Chimney Hollow Reservoir. *See DEIS at 3-7 (citing January 17, 2007 personal communication between then State Engineer Simpson, H.D. and Fred Ore, DEIS at 5-12).* This reliance is simply wrong. Colorado water law clearly provides that the Colorado State Engineer does not have the authority to make this type of determination. Only the water court has such authority (or, in the case of the Blue River Decree, the federal District Court). *See e.g., Empire Lodge Homeowners' Ass'n,* 39 P.3d 1139, 1147 (Colo. 2001); *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003).[15] The DEIS further complicates matters by stating that to "prevent the C-BT Project from storing more water in Granby Reservoir than it could without prepositioning," C-BT would stop storing water at Granby Reservoir when "the total C-BT contents in Granby and Chimney Hollow combined reaches 539,568 AF, which is the physical capacity of Granby Reservoir." *See* DEIS at 3-24. This limitation presumably is intended to prevent an expansion of the C-BT Project water rights that would injure other water users. However, Colorado law requires such a term and condition to be contained within a change of water right decree. Far from a mere formality, the requirement of court approval for changes of water rights "provides and important protection for potentially affected decreed water rights holders." *Trail's End Ranch, LLC v. Colo. Div. of Water Resources*, 91 P.3d 1058, 1063 (Colo. 2002). "They are designed to provide notice and the opportunity for potentially affected decreed water rights holders to participate in proceedings in order to protect their rights." *Empire Lodge Homeowners' Ass'n,* 39 P.3d at 1158. For example, the DEIS states that flows below Granby Reservoir will be reduced under the PA by as much as 30%. This shows the significant changes caused by the PA in stream flows and C-BT Project operations that must be addressed in a formal change of water right. [15] Nor does the fact that C-BT Project water would be stored in a reservoir located in a different basin from where the water is diverted change the strict, mandatory requirement to obtain a change decree imposed by Colorado water law. *See e.g., Twin Lakes Reservoir and Canal Co. v. Aspen,* 596 P.2d 45 (Colo. 1977); *Cities of Aurora and Colorado Springs v. Division 5 Engineer*, 799 P. 2d 33 (Colo. 1990).	

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9	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 11 Reclamation may not substitute its authority or the administrative authority of the Colorado State Engineer for the authority of the appropriate court. Even if the proposed storage limitation is contained in a proper change of water right decree, Reclamation must ensure that it can be implemented from a practical standpoint. Reclamation must demonstrate that it can bypass the physical inflow to the C-BT Project at times when Granby Reservoir has achieved a "paper fill" (Granby Reservoir content, plus Chimney Hollow Reservoir content).	
10	In addition, the DEIS states that average annual C-BT Project diversions from East Slope sources would be reduced by 3,000 acre feet under the PA. *See* DEIS, Section 7.5.1. The reduction in the C-BT Project's East Slope diversions is inconsistent with the operation of the Project contemplated by Senate Document 80. It is also inconsistent with Reclamation's pledged intent to maximize the C-BT Project's East Slope diversions as outlined in Reclamation's 2001 letter to the River District regarding C-BT Project operations. *See* Letter from Maryanne C. Bach, Regional Director, Bureau of Reclamation, to R. Eric Kuhn, General Manager, Colorado River Water Conservation District, October 12, 2001, attached as Exhibit F hereto and incorporated into these comments by this reference.	10. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS
11	B. <u>The PA would illegally benefit the Windy Gap Project by releases of water from the Green Mountain Reservoir replacement pool</u>. Senate Document 80 specifies that the 52,000 acre-foot "replacement pool" in Green Mountain Reservoir shall be available to replace water in western Colorado "which would be usable there if not withheld or diverted by said project."[16] The C-BT Project is the only transmountain diversion project that the replacement pool is intended to benefit. The Project benefits by storing or diverting water that the Project would otherwise not be entitled to divert, in exchange for water released for the Green Mountain Reservoir replacement pool. The C-BT Project's exchange of water from Green Mountain Reservoir was confirmed in the Consolidated Cases in 1992 (and contemporaneously by Colorado's Division 5 Water Court).[17] The amount of C-BT Project water stored in Granby Reservoir by virtue of the exchange with releases from the replacement pool varies from year to year but, in almost all years, the C-BT Project diverts a substantial percentage of the Project yield pursuant to the Green Mountain Reservoir replacement functions. Under the PA, federal C-BT Project water stored in Granby Reservoir would be pre-positioned in a new non-federal reservoir on Colorado's Front Range for the sole purpose of enhancing the yield of the non-federal Windy Gap Project. The Windy Gap Project would therefore [16] *See* Senate Document 80, pg. 3, para. 5(a). [17] *See* Findings of Fact, Conclusions of Law and Judgment and Decree, Consolidated Cases, dated November 10, 1992; and Case No. 88CW382, Water Division 5, State of Colorado.	11. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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11	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 12 benefit from the release of water from Green Mountain Reservoir's replacement pool. The sequence by which the Windy Gap Project would benefit from the replacement pool may appear indirect; however, the result is clear: Pre-positioning would improve the Windy Gap Project yield by a trade of C-BT Project water that was previously stored in Granby Reservoir by virtue of releases from the Green Mountain Reservoir replacement pool. Senate Document 80, and, as described below, the Azure Agreement, both prohibit this result. The DEIS fails to identify or explain this significant conflict between the PA and applicable legal requirements.	
12	C. Pre-positioning violates the federal Reservoir Projects Act. The Reservoir Projects Act requires express Congressional approval for any modification of a Reclamation reservoir project that seriously affects the purposes for which the project was authorized, planned or constructed, or which involves a major operational change in the project.[18] It would be difficult to conjure a more clear-cut example of a "major operational change" than the proposal to move C-BT Project water from storage in the federally-owned Granby Reservoir, located in Grand County on the west-side of the Continental Divide, into a new non-federal reservoir located on Colorado's Front Range, particularly a reservoir that did not exist and was not even contemplated at the time the C-BT Project was authorized. When a proposed method of operating a Reclamation project is not clearly authorized by the project's authorizing legislation, the proper course is for Reclamation to allow Congress to address the issue. Under no circumstances does Reclamation have the discretion to make operating changes that are inconsistent with federal law. *See Southeastern Federal Power Customers v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008); *See also* Order and Memorandum of Decision, dated September 25, 2008; *Lower Arkansas Valley Water Conservancy Dist. v. U.S., et al.*, F. Supp. 2d 1315, 1335 (D.Colo. 2008); "*Re Application of City and County of Denver*, 1989 WL 128576, at *5 (D. Colo. Oct 23, 1989) (noting that an application to change a 'water right to a different point of diversion, use and place of use' is '[b]y definition . . . a major operational change that may only be made upon congressional approval'"); and Opinion by Interior Solicitor Krulitz, re: Authority to Divert Flows from Hunter Creek Tributaries, Fryingpan-Arkansas Project, Colorado, 85 I.D. 326, 334-335 (June 28, 1978). The C-BT project was approved by Congress to bring water from the western slope to lands on the eastern slope greatly in need of "supplemental irrigation" using the facilities contemplated in Senate Document 80. The use of C-BT Project facilities for the delivery and storage of Windy Gap municipal supplies and C-BT water rights in a new 90,000 acre foot non-federal Chimney Hollow Reservoir constitutes a "major structural and operational change." Thus, congressional approval must be obtained for the PA. This is particularly true when, as is the case here, the PA [18] *See* 43 U.S.C.§ 390b(d).	12. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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12	would result in impacts to the C-BT Project that are inconsistent with Reclamation's obligations under Senate Document 80. *See* DEIS, Section 3.5.2.6 and discussion in ¶ V., above.	
13	D. The DEIS fails to adequately consider the impacts of the PA on segments of the Colorado River that are eligible for designation under the Wild and Scenic Rivers Act. The United States Bureau of Land Management has identified the reach of the Colorado River from Kremmling to No Name as eligible for designation and protection under the Wild and Scenic Rivers Act. These stream segments will be affected by the PA, so the DEIS must evaluate all actions within their control through the filter of the river's potential for designation. *See* Interagency Wild and Scenic Coordinating Council's technical report on "*The Wild and Scenic River Study Process*," pg. 29-30.	13. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. This process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, Wild and Scenic River status is a determination made by the BLM as part of the planning process, and is not part of the evaluation for the WGFP EIS. None of the WGFP alternatives would affect BLM recreation facilities within the upper Colorado River Special Recreation Management Area.
14	**VII. The DEIS fails to reconcile conflicts between the PA and the existing permits, water rights, and agreements related to the Windy Gap Project.** A. Absent a change of water rights decree or storage of Windy Gap water in Chimney Hollow would violate Colorado water law. Diversion of Windy Gap Project water rights is authorized pursuant to decrees issued by Colorado water court (Windy Gap decrees).[19] Storage clearly was contemplated (and decreed) as an integral component of the Windy Gap Project. The Windy Gap decrees authorize storage only in Windy Gap reservoir (in the amount of 1546.14 acre-feet) and in Jasper Reservoir (in the amount 11,292.58 acre feet). The use of any reservoir to enhance the yield of the Windy Gap Project, other than the decreed 11,000 acre-foot Jasper Reservoir, would involve a change in the place of storage of Windy Gap Project water. All WGFP action alternatives provide for storage of up to 93,000 acre-feet in reservoirs that are neither identified nor decreed in the Windy Gap decrees. The Windy Gap decrees authorize large direct flow rights; however, under Colorado water law, a direct flow water right cannot be stored, absent a decree authorizing such storage. *See e.g., New Loveland & Greeley Irr. & Land Co. v. Consolidated Home-Supply Ditch & Res. Co.*, 62 P. 366 (Colo. 1900); *Board of Arapahoe County Comm'rs v. Upper Gunnison River Water Conservancy Dist.*, 838 P. 2d 840, 852 (Colo. 1992). This is the case even if the same structure diverting the direct flow rights is used to fill the reservoir. *See New Loveland & Greeley Irr. & Land Co.* at 368. Moreover, the fact that water is diverted from the basin of origin for storage in a different basin does not change the need to obtain a decree authorizing such storage and including terms and conditions to prevent injury to the water rights in [19] *See* Civil Action No. 1768, Grand County District Court; W-4001, District Court, Water Division 5, and 80CW108, District Court, Water Division 5.	14. The Subdistrict is not proposing an expansion of the Windy Gap water rights. All diversions after the WGFP is constructed would be in accordance with the current water rights for the Windy Gap Project. Whether or not prepositioning requires a change of the Windy Gap water rights will be part of the evaluation discussed in the response to comment No.1. This evaluation will also include an analysis of the effects on C-BT Project water rights to assure that they are not adversely affected.

Com-ment	Letter #1062	Response
14	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 14 the basin of origin. *See e.g., Twin Lakes Reservoir and Canal Co. v. Aspen,* 596 P.2d 45 (Colo. 1977); *Cities of Aurora and Colorado Springs v. Division 5 Engineer*, 799 P. 2d 33 (Colo. 1990). The River District's detailed letter to then State Engineer Hal Simpson, dated October 27, 2006, regarding the requirement for a change of water right is attached as Exhibit G hereto and incorporated into these comments by this reference.	
15	B. The PA would violate the Azure Settlement Agreement, the original Windy Gap Record of Decision, and the Windy Gap Carriage Contract. The signatories to the Azure Agreement did not want to allow the Windy Gap Project to change the operation of the C-BT Project in any way, so paragraph 14 of the Azure Agreement requires that the Municipal Subdistrict "comply with all terms and provisions of Senate Document 80 in the design, construction, and operation of the Windy Gap Project." In other words, the Windy Gap Project was approved only on the assurance that Windy Gap operations would be "invisible" to the C-BT Project, and that Windy Gap would always take a back-seat to the operation of the C-BT Project. The PA would result in just the opposite. The pre-positioning proposal would require that C-BT Project operations be manipulated for the sole purpose of benefitting the Windy Gap Project. As discussed above, pre-positioning would violate the specific operational criteria set forth in Senate Document 80. It naturally follows that pre-positioning would violate a fundamental tenet of the Azure Agreement – the operation of Windy Gap in a manner consistent with Senate 80. For this reason, pre-positioning likewise runs afoul of the Final Environmental Statement and Record of Decision for the Windy Gap Project, and is inconsistent with the Windy Gap carriage contract. By its own terms, the carriage contract for Windy Gap was conditioned on completion of the Final Environmental Statement and execution of the Record of Decision.[20] The carriage contract, as amended, must therefore be construed in a manner consistent with the Azure Agreement and the Supplemental Azure Agreement. The Azure Agreement expressly provides that the "Subdistrict will not claim the use of Green Mountain Reservoir for replacement purposes for the Windy Gap Project operation."[21] As discussed above, pre-positioning would allow the Windy Gap Project to benefit from the release of water from Green Mountain Reservoir's "replacement" pool in direct contradiction of the Azure Agreement. The Municipal Subdistrict may argue that the PA is not inconsistent with the Azure Agreement because the proponents do not plan to divert more than the negotiated volumetric limits for the Windy Gap Project that are set forth in the Azure Agreement. However, the Azure [20] *See Supra*, Fn. 10. [21] *See* Azure Agreement at para. 18.	15. We are aware of no basis for the assertion that the Azure Agreement signatories intended that the Windy Gap Project should not "change the operation of the C-BT Project in any way." This is not mentioned in the Azure Agreement in Part IV, Purpose of Agreement, or in any other part of the agreement. Further, the DEIS, which is referred to in the 1980 Azure Agreement, states on page 1-1 that one of the purposes of the EIS is to address the fact that "Operation of the C-BT Project will be modified if water developed by the second project, Windy Gap, is transported through the C-BT system." The operation of the proposed WGFP, which has been evaluated in the EIS, was reviewed in detail by Reclamation to ensure that there would be no negative impacts on operation of the C-BT Project and does not appreciably change the volume of water diverted or delivered by the C-BT Project – and in this way, operation of the project is "invisible" to the C-BT Project. The proposed project operations were designed to make the most efficient use of facilities without expanding the yield of the C-BT project or allowing Windy Gap deliveries through the Adams Tunnel to violate the volumetric limits in the Azure Agreement. The proposed project is consistent with the Windy Gap Carriage Contract, in particular with paragraph 4(a) which states that "the introduction, storage, carriage and delivery of Subdistrict Water shall be subject to the need for the use of said [C-BT] Project Works for [C-BT] Project purposes…" Reclamation has proposed that modifications to the Carriage Contract will be made to allow for prepositioning. Reclamation's standard contracting process will be used to make any necessary modifications to the Windy Gap Carriage Contract. The Subdistrict is not claiming use of the Green Mountain Reservoir pool for replacement purposes for Windy Gap operation. Green Mountain will be used as authorized in SD80 for replacement of out-of-priority C-BT diversions. All Windy Gap diversions, including exchanges, will be in accordance with state water law and "strictly under the priority system" as agreed in Paragraph 13 of the 1980 Azure Agreement.

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15	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 15 Agreement and the Supplemental Azure Agreement were intended to cover the impacts of the defined project as a whole - not just the desired yield of the Project. The Azure Agreement provides that the Municipal Subdistrict may build and operate facilities necessary to accomplish the purposes of the agreement, within the conditions and limitations of the agreement.[22] This provision of the Azure Agreement was intended to clear the path toward construction of the identified project as defined in the agreement; it was not intended to give the Municipal Subdistrict free reign to implement an entirely new project that was not envisioned when the Azure Agreement was executed. The Windy Gap Project always has been considered to consist only of specific identified components. For example, each of the three water court decrees for the Windy Gap Project state that "Windy Gap is an integrated project consisting of Jasper Pump and Pipeline, Jasper Reservoir, Windy Gap Pump, Pipeline and Canal, and Windy Gap Reservoir."[23] In addition, the amended carriage contract states that "it is the purpose of this amendatory contract to: (1) recognize that the Windy Gap Project has been completed and that the Project Works have been utilized to introduce, store, carry, and deliver Subdistrict Water, as contemplated by the [original carriage contract]."[24] Construction of a new Front Range reservoir as a means to increase the project yield cannot reasonably be considered to be within the limitations and conditions of the Azure Agreement, the original or amended carriage contract, or the original Windy Gap Record of Decision, particularly when the operation of the new reservoir would require a change in the operation of the C-BT Project. The Water Conservancy Act, C.R.S. § 37-45-101, et seq. § 37-45-118(1)(b)(II) requires that any project that exports water from the natural basin of the Colorado River include mitigation to water users within the Colorado River basin to assure that present and prospective uses of water will not be impaired nor increased in costs to the West Slope water users. The Municipal Subdistrict, the River District and other West Slope parties entered into the Azure Agreement and Azure Supplement to provide the requisite compensation to the West Slope for the original Windy Gap Project. To the extent the impacts of the WGFP as analyzed in the DEIS are different than the impacts of the original Windy Gap Project, then the PA requires that appropriate mitigation measures be adopted in order to comply with the Water Conservancy Act. [22] *See* Azure Agreement at para. 37. [23] *See* Decrees, Civil Action No. 1768, District Court, Grand County, Colorado; Case Nos. W-4001, and 80CW108, Water Division 5, State of Colorado. [24] *See* Amendatory Contract No. 4-04-70-W0107, March 1, 1990, at Recital (c).	Operation of the proposed project is within the limitations of the 1980 Azure Agreement, the 1985 Supplement to the 1980 Agreement, and the Record of Decision. These agreements rely on the DEIS and FEIS to describe the project that is approved. Both the DEIS and FEIS discuss the use of approximately 90,000 acre-feet of storage on the East Slope, either as unused or leased storage (see DEIS, pg. IV-10) or "participant storage capabilities other than the C-BT Project (see FEIS, pg. IV-68). It has always been intended that storage on the East Slope would be a necessary part of the Windy Gap Project and the WGFP was proposed as a joint, regional project by the Participants to minimize the cost and environmental impacts of storage to realize the yield contemplated in the original Windy Gap Project. The proposed Project is consistent with the original agreements and underlying environmental reports including the 1980 Azure Agreement, 1985 Supplement to the 1980 Agreement, the Windy Gap Carriage Contract, and the original Windy Gap Record of Decision.

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16	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 16 **VIII. No Section 404 Permit should be issued for the PA because the DEIS fails to demonstrate that the PA is the least damaging practicable alternative.** As discussed in the DEIS, a Clean Water Act Section 404 discharge permit is required for the PA. The Clean Water Act provides that, except as provided under section 404(b)(2) of the federal Clean Water Act, no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The Section 404(b) Guidelines establish standards in the determination of whether a proposed action is the least damaging practicable alternative. *See* 40 C.F.R. § 230.10. Section 230.12(3)(iv) of the 404(b) Guidelines provides that the proposed discharge fails to comply with the requirements of the Guidelines when there is insufficient information to make a reasonable judgment as to whether the proposed discharge will comply with the Guidelines. For the reasons set forth in these comments, the DEIS fails to provide sufficient information for the Corps of Engineers to make a reasonable judgment as to whether the PA complies with the Section 404(b) Guidelines. Therefore, a Section 404 Permit cannot be issued for the PA.	16. Although the Corps will extensively use the EIS to evaluate the PA compliance with the Guidelines, the determination to issue a 404 Permit is a decision made by the Corps independently of conclusions in the EIS.
17	**IX. Specific Comments.** A. DEIS, Sections 1.4.1 and 1.6.1: Please note that the Blue River Decree does not authorize storage of C-BT Project water in Boulder Reservoir prior to distribution to Project beneficiaries.	17. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
18	B. DEIS Sections 1.6.2.1, and 1.6.3: The demand for water from the WGFP is based on population projects that are outdated in light of the current recession and housing market collapse. Front Range water demands should be based on more updated population projections.	18. The WGFP is intended to meet the long-term water need of Project Participants to the year 2050, or build-out for some Participants. The recession has had an impact on growth in the past 2 years in many previously fast-growing areas, and the Participant service areas are no exception. However, recessions are short-term economic phenomena, similar to economic boom growth. Long-term growth projections are normalized to "smooth out" cyclical high and low-growth periods. The overall long-term need for additional water supply is not affected by short-term fluctuations in population, although the timing for needing the water may shift.
19	C. DEIS Section 1.10.1: Please explain what accounting changes for the C-BT Project are necessary to account for the proposed changes in storage and exchanges between the C-BT and Windy Gap Projects. Please also note that a change of the C-BT Project water rights is necessary to implement the PA.	19. See response to Comment No. 9. The required accounting would be based on requirements of the State Engineer, but would include, at a minimum, detailed accounting of the total amount of C-BT water contained in Granby and Chimney Hollow reservoirs to ensure the total does not exceed 539,758 acre-feet, which is the physical capacity of Granby Reservoir.
20	D. DEIS, Section 1.10.2.1: Please explain in detail the decision process that Reclamation will undertake to determine if the PA is consistent with Senate Document 80, including public involvement in that process.	20. See response to Comment No. 9.
21	E. DEIS, pg. 1-43, Left column box: Please note that a change of water right decree is necessary to authorize storage of C-BT Project water in a new non-federal reservoir prior to distribution of project water to its end-users.	21. See response to Comment No. 9.

Com-ment	Letter #1062	Response
22	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 17 F. DEIS, Section 2.2.1: Please explain in detail how Reclamation will guarantee that C-BT Project storage and diversions will not be increased by implementation of the PA.	22. The exact nature of the working arrangement between the Subdistrict and Reclamation to implement the proposed project would be the subject of contract negotiations including conditions necessary to protect the C-BT Project and its commitments under its various authorities and water rights. These contract discussions will be open to public participation.
23	G. DEIS, Section 2.2.1: Please note that Windy Gap water is not decreed for long-term storage in Granby Reservoir.	23. See response to Comment No. 14.
24	H. DEIS, Section 2.4.2: Please note that storage of C-BT and Windy Gap water in Chimney Hollow Reservoir would require a decreed change of the C-BT and Windy Gap water rights.	24. See response to Comment Nos. 9 and 14.
25	I. DEIS, Section 3.5.1: The River District believes that the cumulative impacts on the environment extends downstream of Kremmling on the Colorado River. Please explain in more detail why the DEIS limits the stream reach analyzed.	25. The CDSS Model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. However, the area considered for the analysis of hydrologic effects extends downstream of Kremmling to the gage below the confluence with the Blue River. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Average monthly Colorado River flow decreases less than 7 percent from existing conditions compared to the Proposed Action, and less than 3 percent annually. Resource impacts for hydrology, water quality, aquatics, boating, and other resources were evaluated below Kremmling to assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects from the WGFP diminish substantially below Kremmling and would generally be minor. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations.
26	J. DEIS, Section 3.5.1: The fact that the stream reach affected by the PA includes the reach downstream of Granby Reservoir, but upstream of Windy Gap Reservoir, demonstrates that the PA will result in an unlawful change in the operations of the C-BT Project.	26. See response to Comment No. 9.
27	K. DEIS, Section 3.5.1.4: Please note that the Azure Agreement expressly defines the Windy Gap Project as "[a] water diversion storage and conveyance system commencing at a point on the Colorado River just below its confluence with the Fraser River and terminating at Lake Granby, which lake is part of the C-BT Project." Please note that the Colorado State Engineer has no legal authority to determine whether C-BT or Windy Gap water rights can be legally stored in Chimney Hollow Reservoir.	27. See response to Comment Nos. 9 and 14.
28	L. DEIS, pg. 3.16: The PA includes the storage of more C-BT water at a lower elevation and increases the total surface area of C-BT storage. Please explain in detail why C-BT Project evaporative losses will not be increased by the proposed storage of C-BT water in Chimney Hollow Reservoir.	28. See response to Comment No. 22.
29	M. DEIS, pg. 3.24: Please explain in more detail how the proposed storage limitation will guarantee no expansion of the C-BT Project diversions, including the appropriate numeric volumetric storage limit, whether Reclamation intends to adjudicate a change of the C-BT Project water rights to authorize storage in Chimney Hollow Reservoir, and how Reclamation will ensure that Granby Reservoir has the physical capability to measure and bypass to the Colorado River inflow to the C-BT Project that exceeds the proposed storage limitation.	29. See response to Comment No. 22.

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30	Mr. Will Tully Mr. Chandler J. Peter December 29, 2008 Page 18 N. DEIS, Section 3.25.1: The summary of proposed mitigation incorrectly assumes that the purpose and need of the WGFP overrides the operation and primary purposes of the C-BT Project as defined in Senate Document 80. Although the River District obviously has serious concerns with the DEIS, we remain committed to working with Reclamation, the Municipal Subdistrict, Grand County, the Middle Park Water Conservancy District and other interested entities on ways to improve the DEIS and discuss appropriate mitigation measures for the Windy Gap Firming Project. Sincerely, Eric Kuhn, General Manager Colorado River District Exhibits: A. Senate Document 80, dated 6/15/1937 B. Blue River Decrees C. Azure Agreement, dated 4/30/1980 D. Supplemental Azure Agreement, dated 3/29/1985 E. BBA Report, dated 12/23/2008 F. M. Bach letter to R. Kuhn dated 10/12/2001 G. P. Fleming letter to H. Simpson, dated 10/27/2006 cc: CRWCD Board of Directors Eric Wilkinson, General Manager, Northern Colorado Water Conservancy District Lurline Curran Underbrink, Grand County Manager Amelia S. Whiting, Trout Unlimited Lane Wyatt, NWCCOG	30. See responses to Comment Nos. 9 and 22.

Com-ment	Letter #5	Response
1 2	WGFP 5 **From:** Jimmy Arterberry [jimmya@cne-mail.com] **Sent:** Monday, September 22, 2008 1:53 PM **To:** wtully@gp.usbr.gov **Subject:** Windy Gap project Greetings Will: Per our telephone conversation a moment ago; under **3.20.4 Proposed Mitigation** in the DEIS, the Comanche Nation wishes to be advised in advance of any exhumations. In addition, we feel that it would be most appropriate for your office to contact our office immediately, upon the discovery of any remains. I would also like to request a more thorough document, regarding ***site #5LR435*** for our review and a follow up document, per our discussion on ***site #5LR42***. Thank you, Jimmy Arterberry, THPO Comanche Nation 584 Bingo Road Lawton, Oklahoma 73507 (580) 353-0404 (580) 353-0407 fax	1. Reclamation will notify the Comanche Nation if any human remains are found during excavations for construction of any of the reservoir facilities. 2. Reclamation will properly inform the Comanche Nation if there are any human discoveries during construction. Notifications will be in accordance with the Programmatic Agreement or MOU, whichever is appropriate.

Comment	Letter #904	Response
1	DEPARTMENT OF ENVIRONMENTAL HEALTH (970) 328-8755 FAX: (970) 328-8788 TOLL FREE: 800-225-6136 www.eagle-county.com EAGLE COUNTY RAYMOND P. MERRY, REHS Director December 24, 2008 Will Tully, Bureau of Reclamation 11056 West County Rd. 18E Loveland, CO 80537 Re: Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) Dear Mr. Tully: This letter provides Eagle County's comments on the Windy Gap Firming Project (WGFP) DEIS. The WGFP is a new water diversion project from the headwaters of the Colorado River. As you know, the Colorado River traverses Eagle County from Red Gorge (south and downstream of Kremmling) to the mouth of Glenwood Canyon (just west of Dotsero). The Colorado River main stem through Eagle County is a very important recreational resource used by local as well as visiting anglers, boaters and sight-seers. Because we value the recreational assets that our rivers offer, Eagle County hired a consultant to recommend an appropriate minimum in-stream flow for the reach of the Colorado River above Dotsero. We have filed an Instream Flow application with the Colorado Water Conservation Board in 2007 in an effort to protect flows in that area. Since the WGFP will impact river flows in Eagle County, we're concerned with the potential socioeconomic and environmental impacts realized in Eagle County. The socioeconomic evaluation that was presented in the DEIS is too narrow to accurately understand the economic and recreational impacts that the WGFP could cause in Grand County, so obviously there is no consideration given for socioeconomic impacts further down the Colorado River. The DEIS should also evaluate the cumulative effects and impacts of varying Colorado River flows further downstream, past Gore Canyon. By extending the modeling area to at least the Dotsero stream gage, cumulative effects of the operation of WGFP alternatives may take into consideration their effect on other factors including; continued Eagle County growth; Homestake diversions; a potential reservoir in the Wolcott area; depletions in the Eagle River; and how the Shoshone call comes in to play. OLD COURTHOUSE BUILDING, 551 Broadway, P.O. Box 179, Eagle, Colorado 81631-0179	1. The CDSS Model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where direct effects on average monthly flow would be less than 10 percent . Hydrologic and other impacts diminish below the Blue River confluence because the preferred alternative would have less than a 7 percent impact on average monthly flows and less than a 3 percent impact on annual flows. The percent of flow reduction continues to diminish downstream with input from other tributaries. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted. Regarding future potential projects downstream of Kremmling, see Section 2.8.2 of the FEIS and Section 8.1 of the Water Resources Technical Report (ERO and Boyle 2007) for a discussion of the criteria for identifying reasonably foreseeable actions. No measurable socioeconomic impacts are anticipated in Eagle County from anticipated increased WGFP diversions.

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2	December 24, 2008 Mr. Will Tully Re: WGFP DEIS Page 2 Furthermore, the methodologies used for flow modeling (and resulting impacts) may not be representative of what actually occurs and may be misleading due to the considerable variation in daily flows caused by reservoir operations. Because the appropriate modeling was not used in the DEIS, it's challenging to draw accurate conclusions and understand how the alternatives would impact water quality and aquatic life. We have concerns with how the WGFP would effect fisheries (especially due to low flows causing elevated temperatures), groundwater as well as riparian and wetland ecosystems.	2. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. See Section 4.2.4 in the Water Resources Technical Report for a detailed discussion of the process used to disaggregate monthly model output. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Daily data was used for evaluating effects to aquatics, water quality, stream morphology, recreation, and other resources. Table 3-4 of the FEIS indicates how hydrologic data was used in the evaluation of different resources..
3	The DEIS should take into consideration Grand County's Stream Management Plan. Eagle County is involved in a similar process of evaluating the flows needed to protect aquatic life, the environment, recreational values and water supply. Such a plan should not only be evaluated as part of the DEIS, it should be considered a component of the mitigation offered in the DEIS.	Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods with or without the alternatives assessed to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts due to the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for non-drought conditions.
4	Lastly, other current information, such as the Colorado River Wild & Scenic studies being conducted by the Bureau of Land Management; climate change; and mountain pine beetle should be included in the DEIS.	3. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS is to evaluate and disclose the anticipated environmental effects of the proposed action and alternatives. Where adverse effects were identified, mitigation measures were identified to avoid or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target flow recommendations included in the SMP. However, mitigation measures included in the FEIS could help meet some of the goals of the SMP.
5	Eagle County echoes the concerns of Grand County; the Colorado River Water Conservation District; and the Northwest Colorado Council of Governments, Water Quality and Quantity Committee in that we believe the Windy Gap Firming Project is a new water diversion project requiring water rights, a Grand County 1041 permit, and mitigation. The impact analysis must develop information that is sufficient to determine the expected range of potential impacts including cumulative impacts. Inasmuch as we understand this is outside the scope of this DEIS, Eagle County entered into an Intergovernmental Agreement with Grand County and other headwater counties to comment on 1041 Permit applications as we would expect to see for this new municipal and industrial water project. Thank you for your consideration on behalf of Eagle County. Raymond P. Merry, REHS cc: Peter Runyon, Chair, Eagle County Board of County Commissioners Bryan Treu, Eagle County Attorney Keith Montag, Acting Eagle County Manager Grand County NWCCOG CRWCD	4. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. This process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to

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		the recreational values along the Colorado River, the decision on Wild and Scenic River status is made by the BLM as part of their planning process and is not part of the evaluation for the WGFP EIS. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS. Quantitative effects of pine bark beetle infestation on water resources are difficult to accurately predict because of the numerous variables involved and the assumptions that would be necessary. While the potential types of effects are acknowledged in Section 2.8.2.1 on Reasonably Foreseeable Action, no attempt was made to quantitatively evaluate the effects. Any pine beetle-related impacts would be similar for all alternatives. 5. Conditional Windy Gap water rights were established by decrees in 1980 and 1985 when the original Windy Gap Project was approved and made absolute in 1990, as described in Section 3.5.1.3 of the FEIS. There are ongoing discussions between Grand County and the Subdistrict on the need for a new or modification of the existing Windy Gap 1041 permit The EIS provides an estimation of the anticipated direct and cumulative effects of the proposed action based on available information. Addition discussion on this issue was added to Section 1.10.4 of the FEIS.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Michael Ryan
Regional Director
Great Plains Director
Bureau of Reclamation
P.O. Box 36900
Billings, Montana 59107-6900

RE: Windy Gap Firming Project, Northern Colorado, Draft Environmental Impact Statement, CEQ #20080333

Dear Mr. Ryan:

The United States Environmental Protection Agency, Region 8 (EPA) has reviewed the U.S. Bureau of Reclamation's (BOR) Draft Environmental Impact Statement (DEIS) for the Windy Gap Firming Project. EPA offers these comments in accordance with the Agency's responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609.

The Windy Gap Firming Project (WGFP) is a proposed water supply project that is intended to provide more reliable water deliveries to Front Range and West Slope communities and industries. Due to physical limitations and constraints within the existing system, the current Windy Gap facilities have been and are currently unable to deliver the anticipated firm yield of water. Firm yield is typically defined as the amount of water that can be delivered on a reliable basis in all years and is typically determined by yield in dry years. The WGFP would add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm yield of about 30,000 acre feet to Project Participants. Project Participants are all in the State of Colorado and include the City and County of Broomfield, Central Weld County Water District, the Town of Erie, City of Evans, City of Fort Lupton, City of Greeley, City of Lafayette, Little Thompson Water District, City of Longmont, City of Louisville, City of Loveland, Platte River Power Authority, and the Town Of Superior. In addition, the WGFP seeks to firm the water supply for the Middle Park Conservancy District which is a wholesale water supplier that allocates Windy Gap water to about 67 water providers in Grand and Summit Counties.

The DEIS analyzes five alternatives. Alternative 1, the no action alternative, assumes the continuation of existing operations and the enlargement of Ralph Price Reservoir by the City of Longmont. Alternative 2, development of a 90,000 acre –foot (AF) Chimney Hollow Reservoir on the East Slope of the Continental Divide (East Slope) along with the ability to store or

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1	preposition Colorado-Big Thompson (C-BT) water in the new reservoir, is the proposed action Alternative 3 is a combination of a 70,000 AF Chimney Hollow reservoir on the East Slope and Jasper East Reservoir (20,000 AF) on the West Slope of the Continental Divide (West Slope). Alternative 4 is a combination of a 70,000 AF Chimney Hollow Reservoir on the East Slope and a 20,000 AF Rockwell Reservoir on the West Slope. Alternative 5 is a combination of a 60,000 AF Dry Creek Reservoir on the East Slope and a 30,000 AF Rockwell Reservoir on the West Slope. All build alternatives include various pipeline and connection infrastructure as well. All build alternatives would require a similar amount of water diverted from the Colorado River. Windy Gap firm yield would increase from zero under existing conditions to about 30,000AF under the Action alternatives. EPA believes that this DEIS provides significant complex information. However, EPA has concerns with several aspects of the analysis, identified herein. In addition, based on EPA's review of the DEIS, EPA has significant objections to the WGFP's impacts to the Colorado River and to impaired water bodies. EPA also has concerns with the lack of analysis of conservation alternatives, the impacts to stream morphology of the Colorado River, and the water quality analysis in all of the water bodies potentially affected by this project. EPA's major comments on the DEIS are highlighted below, with attached detailed comments on these and additional concerns. In a separate letter to the United States Army Corps of Engineers (Corps), EPA is commenting on the Clean Water Act (CWA) 404 permit application, notice of which the Corps issued at the same time as the BOR issued the WGFP DEIS. EPA understands the Corps intends to rely on the BOR DEIS to ensure compliance with the CWA Section 404(b)(1) Guidelines requirements. A summary of EPA's CWA Section 404 permit application comments to the Corps is provided in this letter. ***Water Quality Standards Violations and Degradation*** EPA objects to the high potential for the WGFP to exacerbate existing water quality impairments in East Slope and West Slope water bodies. The DEIS predicts increased nutrient loading and consequent dissolved oxygen (D.O.) reductions to both East and West Slope rivers and reservoirs, several of which are already impaired. Carter Lake and Horsetooth Reservoir are on the State of Colorado's 2008 Clean Water Act Section 303(d) List of Water-Quality-Limited Segments as impaired for their Aquatic Life Use due to mercury (associated with nutrient enrichment and reduced oxygen environments). In addition, Horsetooth Reservoir is listed for D.O. impairment. Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake are all acknowledged as exceeding applicable water quality standards (WQS). Projected instream temperature increases are also a significant stressor to aquatic life, and a significant impact of the project. High temperature and nutrient levels (and consequent low D.O. levels) may lead to additional, more severe, or further impairments throughout these watersheds, which will be difficult to remedy through point source controls alone. Further, any worsening of these conditions increases the future required efforts and costs associated with remediation and restoration. The proposed action appears to have the potential to directly impact the assimilative capacity for high temperatures and nutrients in all of the downstream reservoirs and streams, 2	1. See responses to Comment Nos. 15, 16, and 18 – 32.

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1	exacerbating the difficult cleanup plans and wasteload allocations required in any forthcoming "Total Maximum Daily Loads" (TMDLs). The DEIS does not provide adequate mitigation measures for these water quality impacts. The EIS should identify appropriate measures to address these impacts. EPA strongly suggests that BOR include enforceable mitigation measures in its Record of Decision (ROD) to minimize pollutant loading in the basin, and maintain healthy aquatic ecosystems in these waterbodies. Suggested mitigation measures are included in the enclosed detailed comments.	2. The effect of a reduction in streamflow on the aquatic ecosystem was evaluated using several methods including analysis of changes to peak flows, changes to sediment transport, and impacts on physical habitat using River2D. As discussed in Section 3.7.2.3 on Stream Morphology, channel maintenance flows would remain sufficient to prevent aggradation or degradation of the channel. The projected flow regime with the WGFP would maintain the ecological functions of high flows for stream morphology and riparian conditions. Further, the sediment transport associated with these flows would be sufficient to transport sediment size classes important to benthic health and spawning habitat (see response to Comment Nos. 32 – 34).
2	***Impacts to the Colorado River*** According to the DEIS, the WGFP will result in flow reductions to the Colorado River. The DEIS predicts the majority of the reductions to occur between May and August. From WGFP alone, the Colorado River average annual flow below Granby Reservoir is estimated to decrease by 15% (9,000 AF) under the proposed action, and 12-13% for the other action alternatives (see DEIS p. ES-8). Below the Windy Gap diversion, the decrease to the Colorado River is 14% for the action alternatives. The WGFP with other projects analyzed in the cumulative effects portion of the DEIS are estimated to reduce the Colorado River annual flow, below the Windy Gap diversion, by 21% in a wet year (1% in a dry year) (see DEIS p. ES-8). EPA has significant concerns with the reduction in flows to the Colorado River below Windy Gap (as well as at other points on the Colorado River, listed on Table 3-16, DEIS p. 3-45) associated with the action alternatives and cumulative impacts. This significant reduction in flow would impact aquatic ecosystem functioning and could result in unforeseen and irreversible ecological impacts. Further, EPA is concerned that mitigation for adverse or unavoidable impacts associated with an altered flow regime is extremely difficult and perhaps infeasible to offset losses.	Impacts to physical habitat were evaluated using River2D and habitat suitability data from CDOW. Physical habitat is not predicted to change during most of the year, in particular in winter when habitat can be most limited. For this analysis, a threshold of a 15% change in habitat was used as the level above which impacts to aquatic habitat were considered to have effects (FEIS Section 3.9.2.2). This threshold level has been used by other investigators in Oregon and Washington (Instream Flow Council 2008 Short Course - What About Those High Flows? Environmental Flow Requirements for High Flows on Streams and Rivers, Moderator: Alan Wald, Washington Department of Fish & Wildlife, October 6, 2008). The rationale for selecting a threshold level is based on the error associated with field measurements and the error within the habitat models. Additional analysis was completed after the DEIS to provide information on the seasonal distribution of habitat effects associated with changes in Colorado River streamflow. This information is included in the Aquatic Resources section of the FEIS and a revised Aquatic Resource Technical Report (Miller Ecological 2010). The seasonal analysis shows that most of the time, the percent change to habitat is less than the 15% threshold level. Habitat changes greater than 15% occur primarily from June through August and vary by species and life stage. The largest change to habitat occurs between Windy Gap Reservoir and the Williams Fork for adult rainbow trout for periods of 2 to 4 weeks during the summer. A major assumption for application of PHABSIM is that habitat quantity controls or limits populations. Therefore the time of the year when the lowest amount of habitat is available is likely to be the limiting time period for the species being studied. In the Colorado River, winter is the time when the least amount of habitat is available to the fish species and likely controls the populations. WGFP does not divert in the winter and therefore does not change the habitat availability during the limiting time period. The changes to habitat during summer are substantial but still provide considerably more habitat than during winter. Also, the duration of the decrease is usually on the order of several weeks rather the months of low habitat as in fall and winter and therefore less likely to effect fish at the population level.
3	The climate change discussion contends that modeling the future impacts of climate change relating to the Colorado River is not a useful exercise since existing reports on the impacts of climate change on the Colorado River are uncertain and predict a variety of outcomes (see DEIS p. 2-44). EPA believes BOR should model the impacts of a scenario where flows are reduced substantially because of climate change. It is reasonably foreseeable that minimal stream flows will occur much more often. That, coupled with the 21% flow reduction discussed above, suggests severe impacts to portions of the Colorado River affected by this project.	
4	***Sustainability and Conservation*** The growth in the number of water projects in Colorado raises concerns over the sustainability of the current approach to water supply in the western United States. EPA believes that a higher priority should be placed on conservation, efficiency, and reuse, which could result in significant cost efficiencies and result in reduced environmental impacts and energy conservation. EPA believes that all of the communities taking part in the WGFP should be required, before any action alternative is considered, to take part in a number of conservation efforts that would boost the use of existing water supplies before building new infrastructure, 3	

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4	dams, and reservoirs. Most water providers appear to have implemented some water conservation measures, but many water saving measures appear underutilized and undeveloped or voluntary. ***Alternatives Evaluated*** The alternatives evaluated in the DEIS are limited to providing storage or firming for all or a portion of the existing junior water rights of the Windy Gap Firming Project for current and future municipal and industrial supply. EPA believes other alternatives may exist that are within a reasonable range of alternatives required by NEPA as well as less damaging practicable alternatives required by the CWA Section 404(b)(1) Guidelines to meet current or future water supply demand. These alternatives include, but are not limited to: 1) water conservation including active municipal, industrial (M&I) and agricultural efficiency measures; 2) acquisition of more senior water rights including water rights that have been available to the project proponent since the original Windy Gap Project; 3) agricultural transfers including permanent, interruptible, and rotating/fallowing transfers; 4) use of short-term agricultural leases for immediate temporary water supplies; 5) conjunctive use of surface water and ground water; and 6) M&I reuse, including water rights exchanges, non-potable reuse, and indirect potable reuse. EPA believes a conservation alternative, potentially in combination with other alternatives, would be in the best interests of the communities involved, from both a cost perspective and an environmental perspective.	The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).
5		3. See response to Comment No. 14. 4. See response to Comment No. 9. 5. See response to Comment No. 10.
6	***Compliance with the CWA Section 404(b)(1) Guidelines*** As noted above, EPA is providing comments on the CWA Section 404 permit application for the project in a separate letter to the Corps. EPA understands the Corps intends to use the BOR EIS to satisfy the requirements of the CWA Section 404(b)(1) Guidelines (Guidelines). The Corps must ensure compliance with the Guidelines prior to issuance of a CWA Section 404 permit for the discharge of dredged or fill material into waters of the United States. EPA disagrees with the narrow scope of the purpose and need statement in the DEIS for the issuance of a CWA Section 404 permit. EPA believes the basic (overall) project purpose is to provide a portion of the existing and future water supply demands of project participants. EPA believes the DEIS analysis is not in compliance with the Guidelines in accordance with 40 CFR 230.12 due to: 1) an improperly truncated review of alternatives (40 CFR 230.10(a)); 2) a lack of meaningful analysis of regarding potential violations of State water quality standards (40 CFR 230.10(b)); 3) a lack of meaningful analysis regarding the potential for the proposed action to cause or contribute to significant degradation of waters of the U.S, specifically in light of secondary and cumulative effects of this and other reasonably foreseeable water projects within the Upper Colorado River Basin (40 CFR 230.10(c)); and 4) insufficient mitigation (40 CFR 230.10(d)). In addition, based on the information currently available in the DEIS, EPA believes the proposed action will result in substantial and unacceptable impacts to the Upper Colorado River 4	6. See response to Comment No. 38.

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6	Basin, which EPA has determined is an aquatic resource of national importance (ARNI) in accordance with the CWA Section 404(q) and Part IV(3)(b) of the 1992 Memorandum of Agreement between EPA and the Department of the Army. In its letter to the Corps regarding the WGFP CWA Section 404 permit application, EPA is requesting the Corps reconsider the availability of potentially less environmentally damaging practicable alternatives. ***Mitigation*** The mitigation measures for water quality and stream morphology impacts are not sufficiently definitive and give no assurance that they will be required or will mitigate for the impacts expected (see DEIS p.3-292). EPA strongly suggests that enforceable mitigation measures for the water quality and stream morphology impacts of this project be included in the ROD. We have included examples of mitigation measures in our enclosed detailed comments. ***Rating*** Based on EPA's review as summarized in the above comments, and in accordance with our policies and procedures for reviews under NEPA and Section 309 of the Clean Air Act, EPA has rated the DEIS as "Environmental Objections - Insufficient Information" ("EO-2") (Because the DEIS does not identify a preferred alternative, EPA is rating all of the action alternatives EO-2). The "EO" rating signifies that EPA's review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. The basis for the EO rating is EPA's belief that the action might violate or be inconsistent with achievement or maintenance of the Clean Water Act, e.g., impairment of already impaired waters without assurance of adequate mitigation of these impacts. The "2" rating signifies that the DEIS does not contain sufficient information for the EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment. The water quality and stream morphology sections of the enclosed detailed comments discuss the information EPA believes is insufficient. EPA's comments, and this rating, apply to all the action alternatives carried through the analysis. A description of EPA's EIS rating system is enclosed. EPA remains committed to working with the BOR and the Corps on the issues described in this letter. We are committed to providing information in areas where we have requested additional information or additional mitigation, if you request. Please contact me at 303 312-6004, or Melanie Wasco of my staff, at 303 312-6540. Sincerely, Larry Svoboda Director, NEPA Program 5	
7		7. See response to Comment Nos. 32 and 39.

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	cc: Will Tully, U.S. Bureau of Reclamation Chandler Peter, U.S. Corps of Engineers 6 Printed on Recycled Paper	

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8	***EPA's Detailed Comments*** ***Windy Gap Firming Project (WGFP) DEIS*** **PURPOSE AND NEED** The DEIS states that the purpose and need of the proposed project is, in part, "to deliver a firm annual yield of about 30,000 AF of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project" (see DEIS p. 1-1). The Purpose and Need stated in the DEIS artificially constrains alternatives to those directly associated with the existing Windy Gap Project. EPA believes the project purpose is to meet a portion of the existing and future water supply demands of project participants and thus additional alternatives that address this purpose should be analyzed and included. In addition, detailed information on the demand shortfall that occurred after the original Windy Gap project was built is not included in the DEIS. The historical perspective of the potential cause of the demand reductions during the post project time period may be pertinent to present day circumstances. Because demand projections are difficult to estimate, EPA recommends that the Bureau of Reclamation (BOR) and the Army Corps of Engineers (Corps) request an independent review of the Participants' estimated and future water requirements and supply studies (i.e., alternatives) by the Corps' Institute for Water Resources, and utilize the most current economic and population growth indicators for future water demand and supply information in subsequent NEPA documentation. EPA notes that the recent downturn in the real estate market could slow growth significantly in all of the communities served by this water.	8. The DEIS acknowledges (DEIS p. 1-4, Section 1.3.1) that the Windy Gap Firming Project meets a portion of the participants' existing and future needs. The intent of the project is only to improve the yield from an existing project with existing water rights (DEIS p. 1-1). As the lead agency Reclamation retains the responsibility to ensure the relevancy and legitimacy of the purpose and need. Reclamation believes that the purpose and need satisfies both conditions. The original Windy Gap Project EIS (1981) estimated that about 56,000 AF of water could be diverted annually from the Colorado River and that about 48,000 AF could be delivered to the Participants after losses and delivery of 3,000 AF to the Middle Park Water Conservancy District. The current WGFP was initiated by some of the current Windy Gap owners because the original Windy Gap Project failed to deliver the anticipated yield from their water rights for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm about 30,000 AF of its Windy Gap water supply. Not all of the Windy Gap unit holders or all of the Windy Gap units owned by WGFP Participants are included in the proposed project, thus the WGFP is only seeking to firm about 30,000 AF of the 48,000 AF of the original expected yield. Windy Gap water represented a source of existing water available to the Participants, but requires additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for other sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply and will be individually investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.
9	**SUSTAINABILITY AND CONSERVATION** The growth in the number of water projects in Colorado raises concerns over the sustainability of the current approach to water supply in the western United States. EPA believes that a higher priority should be placed on conservation, efficiency, and reuse, which could result in significant cost efficiencies, reduced environmental impacts, and increased energy conservation. EPA believes all of the communities taking part in the WGFP should be required, before any action alternative is considered, to take part in a number of conservation efforts that would boost the use of existing water supplies before building new infrastructure, dams, and reservoirs. Most water providers appear to have implemented some water conservation measures, but many water saving measures appear underutilized and undeveloped, or voluntary. The BOR should evaluate different levels of conservation practices available to the Participants and require the communities participating in this project demonstrate that they have implemented a variety of sustainable water conservation measures, including but not limited to: water metering, water leak detection, conservation pricing, landscape requirements, water reuse, consumer education, golf course water conservation, emergency water use restrictions. 7	Future water demands were addressed in the EIS (DEIS p. 1-18, 1-19, Table 1-4 and Figure 1-9) as a means for Reclamation to confirm the need for the project (DEIS p. 1-10). However, the project is designed to improve an existing water supply, rather than develop other water sources. In order to assess the ability of the WGFP to provide water on a consistent basis (firm yield), an analysis was needed to estimate the amount of water that could be reliably delivered (DEIS p. 3-51, Tables 3-20 and 3-21). The yield estimate for Windy Gap water provides Front Range communities more specific information that may be useful in their planning. Comprehensive plans prepared by the project participants are not the focus of this EIS. The original Windy Gap Project was built to meet a portion of the then-current water demand and projected future water needs for the participants at that time. Windy Gap water deliveries have varied over the years due to available supplies, changes in Windy Gap unit ownership, and varying

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		demand. The DEIS and the WGFP Purpose and Need Report (ERO and Harvey Economics 2005) evaluated the projected long-term water needs for the Participants. The results of that analysis indicated all of the Participants have a need for additional water to meet future demands. While the timing of Participant future water needs may vary from projections because of changing economic conditions or other variables, all available evidence, including recent reports from the State Water Supply Initiative, indicates that water demand for the WGFP Participants, as well other water users along the Colorado Front Range, will continue to increase in the future as the population grows. Reclamation collaborated with the Corps of Engineers (Corps) in the development and review of the WGFP analysis of purpose and need. Neither Reclamation nor the Corps believes additional reviews or studies are necessary to evaluate future water requirements or supplies. 9. The WGFP Participants have committed to maintaining a state-approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365). Seven of the WGFP Participants have CWCB-approved plans, and other municipal water providers and water districts have committed to acquiring a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict WGFP Participants for use of C-BT facilities.

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9	The BOR could suggest a per capita use percentage reduction for each community as a goal, and that number could depend on the water use percentage of industry in the community, and the current status of the community's per capita usage. While EPA recognizes that the water use per capita for Windy Gap participants dropped 37% between 1988 and 2003, EPA believes the participants can go further in cutting the water demand (see DEIS p. 1-15).	
10	**ALTERNATIVES** NEPA regulations require an evaluation of a reasonable range of alternatives in a manner that provides a clear and consistent comparison (40 CFR 1502.1, 40 CFR 1502.14(b)). The CWA Section 404(b)(1) Guidelines require the Corps to issue a CWA Section 404 permit for the discharge of dredged or fill material into waters of the United States only for the least environmentally damaging practicable alternative (LEDPA) (40 CFR Part 230). Alternatives that are reasonable and practicable may include alternatives that are outside the capability of the applicant and are feasible from a technical and economic standpoint. EPA does not believe the DEIS provides an alternatives analysis that complies with either the Council on Environmental Quality (CEQ) regulations at 40 CFR 1502.14 or the CWA Section 404(b)(1) Guidelines. The alternatives evaluated in the DEIS are limited to providing storage or firming for all or a portion of the existing junior water rights of the Windy Gap Firming Project for current and future municipal and industrial supply. The DEIS described the process of evaluating a broad range of alternatives including structural and nonstructural water supply alternatives. However, according to the DEIS, the screening process resulted in the elimination of the majority of alternatives in order to comply with the Guidelines. Despite the screening criteria used in the DEIS, EPA continues to believe other reasonable and less damaging practicable alternatives may be available to meet current or future demand. Such alternatives include, but are not limited to: 1) water conservation including active municipal, industrial (M&I) and agricultural efficiency measures; 2) acquisition of more senior water rights including water rights that have been available to the project proponent since the original Windy Gap project; 3) agricultural transfers including permanent, interruptible, and rotating/fallowing transfers; 4) use of short-term agricultural leases for immediate temporary water supplies; 5) conjunctive use of surface water and ground water; and 6) M&I reuse, including water rights exchanges, non-potable reuse, and indirect potable reuse. These water supply alternatives are detailed in the State of Colorado Statewide Water Supply Initiative, Phase II Report (SWSI) CDM 2004; http://cwcb.state.co.us/IWMD/AlternativeAgriculturalWaterTransfersGrantProgram/). EPA understands the State of Colorado considers these alternatives viable to address Colorado's water supply needs. The DEIS states that each participant has developed a unique portfolio of water supply sources to meet existing and anticipated water needs and that a diversity of water supply sources is generally preferred to ensure reliable deliveries (see DEIS p. 1-11). EPA believes the alternatives identified above may provide comparably diverse water supply opportunities, or potentially more reliable and efficient options for water supply for the Participants than the 8	10. WGFP alternatives were developed to meet the project purpose and need, as described in the response to Comment No. 8. Reclamation considered 170 different alternatives using NEPA and Section 404(b)(1) guidelines in cooperation with the Corps, to narrow down the range of reasonable alternatives for meeting the project purpose and need (WGFP Alternative Analysis, ERO 2005). Screening criteria based on 404(b)(1) guidelines were established to help select the least environmentally damaging practicable alternatives (LEDPA) for consideration in the DEIS. As indicated in the response to Comment No. 9, all of the WGFP Participants have or will be implementing state-approved water conservation plans prior to the delivery of any WGFP water. While conservation is a key component of meeting existing and future water needs for all of the Participants, firming delivery from existing sources of water supply, such as the WGFP also is needed to meet projected demands. Other EPA-suggested alternatives may provide alternate sources of water, but would not meet the project purpose and need. WGFP Participants could individually consider other sources of water supply to meet water needs not satisfied by the WGFP and planned conservation measures.

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10	proposed project and should be critically explored. An alternative that is aggressive on conservation (alone or in combination with other alternatives identified above) will not only disclose valuable information for the decisionmakers and the public to compare the magnitude of environmental effects of the alternatives, but will also reduce costs and dramatically reduce environmental impacts and energy use.	11. The FEIS provides a comparison of the alternatives in relation to existing conditions. Information on the No Action alternative and comparisons with the No Action alternative also are given for some resources according to Bureau of Reclamation NEPA Handbook guidance. The mitigation measures included in the FEIS were developed based on a comparison of the Preferred Alternative with existing conditions.
11	**USE OF NO ACTION ALTERNATIVE FOR BASELINE CONDITIONS:** The BOR compares impacts of the action alternatives to the no action alternative, rather than to existing baseline conditions. The DEIS, in most cases, contains sufficient information to enable the reader to compare action alternatives to existing conditions, which EPA believes is more consistent with the intent of NEPA. In the case of stream temperature impacts, the DEIS does not indicate whether the projected percent temperature increase is related to the no action or existing conditions. We believe, when specifying mitigation measures, the BOR should be comparing impacts to existing conditions.	The text in the water quality section was revised to more clearly indicate that the increase in stream temperature is a change from existing conditions.
12	**INDIRECT IMPACTS** The DEIS fails to evaluate "indirect" impacts (caused by the action and later in time or farther removed in distance) to wetlands and other waters resulting from reasonably foreseeable growth inducing effects from the proposed action. Firming of Windy Gap water will likely provide more reliable water supply to both the Front Range communities and the West Slope Participants. This proposed water supply will affect future development growth rates, population density and changes in land use patterns. These potentially significant indirect effects from land development and construction should be evaluated and disclosed to determine the potential adverse impacts to wetlands and other waters. An analysis similar to the one used in the Northern Integrated Supply Project DEIS, which identified the wetland losses as cumulative effects but that EPA believes is a combination of indirect and cumulative impacts, should be used to calculate indirect impacts to wetland acreages resulting from construction and development in the broader study area (and not just related to development near the proposed reservoirs). In addition, it should not be assumed that Clean Water Act Section 404 permits including mitigation will be required for reasonably foreseeable development impacts because certain wetlands and other waterbodies in Colorado do not require permits due to their locations on the landscape.	12. As discussed in Section 2.8.3, Actions Not Considered Reasonably Foreseeable, growth-related impacts were not evaluated in the FEIS because population growth in the communities served by the WGFP is expected to occur regardless of the decision on whether to implement the project. While regional growth and development may affect wetland resources in the future, much as it has in the past, approval of the WGFP would not result in more wetland impacts than are likely to occur without the project. Any growth related impacts to wetlands would be similar for all alternatives. The only incremental difference in cumulative effects to wetlands between the alternatives would be the direct effects related to project facilities.
13	**CUMULATIVE IMPACTS** According to the DEIS, the WGFP will result in flow reductions to the Colorado River, the majority of which are projected to occur between May and August. From this project alone, the Colorado River average annual flow below Granby Reservoir is estimated to decrease by 15% (9,000 AF) from existing conditions under the proposed action, and 12-13% for the other action alternatives. Below the Windy Gap diversion, the decrease to the Colorado River is 14% for the action alternatives. Other projects analyzed in the cumulative effects portion of the DEIS, in combination with Windy Gap, are estimated, as an annual average, to reduce the Colorado 9	13. The cumulative effects analyses for aquatic resources, water quality, and stream morphology considered the accumulated change to the Colorado River. At EPA's request Table 3-20 was added to the FEIS to better illustrate the cumulative effect to flows in the Colorado River from past, present and reasonably foreseeable actions. As discussed in more detail in the response to Comment Nos. 32 to 35, hydrologic processes that maintain the channel and that provide flushing flows for sediment transport would remain intact under the proposed action. A recent evaluation was completed of available streamflow versus shear stress data at the Colorado River Breeze station, a riffle site located downstream of the confluence with the Williams Fork (ERC 2009). This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand and silt, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations from below Windy Gap to above the Blue River showed that fine sediments (sand and silt, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). Sediment transport up to small gravels is important for scouring accumulated fines and algae from the stream bed. Sediment up through very

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		coarse gravel, which includes spawning substrates for trout and interstitial spaces for macroinvertebrates. Flows within the range of 510 to 1,240 cfs, more than adequate to mobilize up to coarse gravel, would continue to occur during nearly 50 percent of all years under the proposed action with cumulative effects. Under No Action and cumulative effects, flows of 510 to 1,240 cfs would occur during about one third of all years. While Colorado River streamflows have changed substantially since the first half of the 20th century, sufficient channel maintenance flows and peak flows would occur under the WGFP to maintain aquatic habitat. Current healthy fish populations ranging from about 4,000 to 11,000 fish per mile attest to the existing quality of the Colorado River. The majority of the impacts to aquatic habitat are of a magnitude that is not a limiting factor for fish survival. Mitigation measures in the Fish and Wildlife Mitigation Plan developed by the Subdistrict (FEIS Appendix E) would reduce potential impacts to trout from elevated stream temperatures in the summer. See response to Comment No. 15. The FWMP also includes an increase in flushing flows to 600 cfs under certain conditions. Nutrient mitigation measures (FEIS Section 3.8.4) would offset the nutrient loadings from Fraser River WWTPs and nonpoint agricultural sources in the Willow Creek basin, a tributary to the Colorado River and improve water quality in these streams year-round. Results of the detailed modeling of hydrologic conditions, water quality, and aquatic habitat in the Colorado River indicate that the WGFP (along with existing bypass flows and flushing requirements and new mitigation measures developed to address stream temperature, nutrients) would not lead to threshold level impacts that threaten the ecology of the river. Existing minimum flow requirements that maintain base flows during summer would not change and would protect primary and secondary productivity. These flows support the trout and other fish populations below Windy Gap Reservoir, and are expected to continue with the proposed action. The cumulative impact analysis shows that projects other than the proposed action would cause changes greater than the 15% threshold in dry water years during the summer. Windy Gap does not divert in dry years so the changes in these years are due to projects other than WGFP. The lowest flows and the lowest habitat still occur during late fall and winter for several months in all flow years. Therefore, the reduction in habitat during summer, while it is substantial, is likely not the limiting habitat factor for trout. In addition, the sediment transport analysis demonstrates that the channel would be maintained with the flows that occur for cumulative impacts. The cumulative impacts from those other reasonably foreseeable projects exceed the threshold of significance at times when WGFP has no change on habitat or river flow. Also note that the hydrologic impacts of the Moffat Project in the WGFP analysis of cumulative effects are overstated because Denver's Blue River demands would be 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver Water changed their Blue River demands after the hydrologic modeling for the WGFP was completed.

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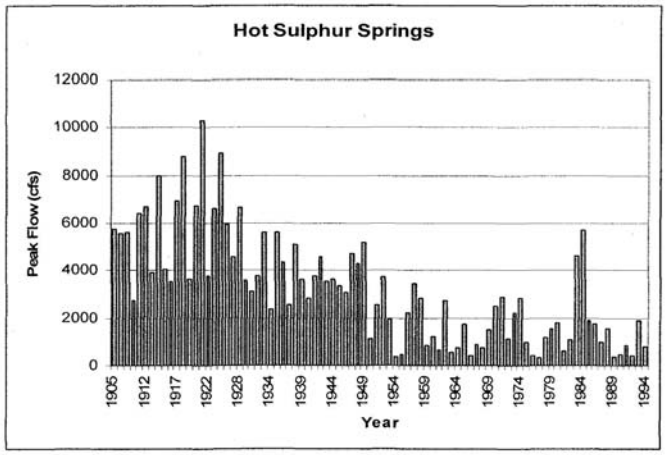
13	River flow below the Windy Gap diversion by 21% in a wet year (1% in a dry year). EPA has significant concerns with the reduction in flows to the Colorado River below Windy Gap (as well as at other points on the Colorado River, listed on Table 3-16, DEIS p. 3-45) associated with the action alternatives and cumulative impacts. It is important to note that the DEIS states that average annual stream flow in the Colorado River at Hot Sulphur Springs declined from 486,209 AF in 1905-1949 to 175,264 AF in 1950-1994 (see DEIS p. 3-7), a decline in average annual stream flow of 64% due, in part, to diversions from Moffat, Colorado Big Thompson and Windy Gap diversions. Thus, this project, in combination with other reasonably foreseeable actions, will remove an additional 21% of the remaining 36% of the annual flow hydrograph, leading to further impacts to the river from manmade diversions. This project's impacts to the Colorado River, coupled with other reasonably foreseeable actions, could be severe, with irreparable harm done. EPA has objections to the cumulative impacts to the Colorado River. We believe much more attention should be given to what these projects are doing in total to the Colorado River. EPA recognizes that the existing peak flow conditions on the Colorado River are very different than historical conditions (Figure 1, Table 1), and is concerned that further reductions to the existing hydrograph will reduce the resiliency of the system and place the system at much higher risk of threshold (non-linear) changes to the aquatic community.  Figure 1: Instantaneous peak flows from the USGS gage at Hot Sulphur Springs from 1904-1994. The study period for WGFP hydrologic analyses began in 1950. 10	The decreases that are shown for dissolved oxygen are small and the total concentration remains above the state standard of 6.0 mg/l. The change in thermal regime should not impact the macroinvertebrate community since the tolerance of many of the macroinvertebrates is similar to the temperature tolerance of trout. Seasonal water temperature variations that follow air temperature would remain similar with the WGFP, which would allow macroinvertebrates that rely on water temperature cues to complete their life cycles. The non-game fish species would also remain protected by the Fish and Wildlife Mitigation Plan. In total, there is no indication that the river is at a critical threshold based on the data gathered for the existing conditions and the analysis of projected changes.

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13	Table 1: Instantaneous peak flow return intervals from USGS gage at Hot Sulphur Springs for 1904-1949 and 1950-1994 calculated by EPA using a Log-Pearson Type III Distribution. Flow is displayed in cubic feet per second (cfs). Return Interval (years) | 1905-1949 Flow (cfs[1]) | 1950-1994 Flow (cfs) 2 | 4,629 | 1,232 5 | 6,302 | 2,297 10 | 7,440 | 3,176 25 | 8,909 | 4,483 50 | 10,026 | 5,598 100 | 11,166 | 6,831 200 | 12,334 | 8,199 Throughout the DEIS there are references to the project's direct and indirect impacts to stream morphology, water quality and aquatic life as minor, and that cumulative effects are similar to the direct effects. EPA believes that when the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, the impacts reach a level of significance that is objectionable. EPA believes that it is likely that the proposed project will have serious adverse effects on aquatic ecosystem diversity, productivity and stability not analyzed sufficiently in the DEIS. EPA is concerned that the cumulative effects analysis did not consider the potential for threshold (non-linear) responses within the Colorado River. The impacts of the project are exacerbating current hydrologic conditions associated with the operation of diversion within the Upper Colorado Basin. Incremental or piecemeal movement towards a reduced hydrograph with altered temporal variation increases the likelihood for the system to approach a threshold point beyond which the system may exhibit dramatic changes, potentially including loss of native fish species. The EIS should assess the long-term cumulative impacts and uncertainty in their predicted responses. An additional component of a cumulative impacts analysis should address the potential for threshold responses. The DEIS acknowledges the importance of bankfull and channel maintenance flows in the DEIS. EPA suggests that BOR address a minimum mitigation that is equivalent to that flow volume (e.g., 1,240 cfs for bankfull discharge) instead of the 450 cfs of the existing mitigation.	
14	The climate change discussion contends that modeling the future impacts of climate change relating to the Colorado River is not a useful exercise since existing reports on the impacts of climate change on the Colorado River are uncertain and predict a variety of outcomes. (see DEIS p. 2-44) However, EPA believes BOR should model the impacts of a scenario where flows are reduced substantially because of climate change. It is reasonably foreseeable that minimal stream flows will occur much more often than occurs now. That, coupled with the 21%	14. The discussion of climate change in Section 2.8.2, Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS.

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14	reduction discussed above, suggest severe impacts to the portions of the Colorado River impacted by this project.	15. The Subdistrict would develop a proposed nutrient reduction mitigation plan for Reclamation and Corps approval, as described in Section 3.8.4 of the FEIS.. The plan includes point source nutrient reductions from WWTP discharges in the Fraser River and nonpoint source nutrient reductions from agricultural land in the Willow Creek watershed. Other nutrient reduction measures would be implemented as necessary to meet the requirement to provide a documented nutrient reduction credit factor of 1:1 to satisfy Reclamation and Corps mitigation requirements. These measures would improve the quality of the Fraser River, Willow Creek, and the Colorado River year-round and also would benefit the Three Lakes, Horsetooth Reservoir, and Carter Lake by reducing nutrient loading from WGFP pumping.
15	**WATER QUALITY** In general, increased nutrient loading and consequent dissolved oxygen (D.O.) reductions to both East and West Slope rivers and reservoirs are the most significant water quality impacts of the proposed project. Projected instream temperature increases are also a significant stressor to aquatic life, and a significant impact of the project. High temperature and nutrient levels, and consequent low D.O. levels, are impacts disclosed in the DEIS. These water quality impacts may lead to additional or further impairments in these watersheds, which could be difficult and costly to remedy, and probably not practical to remediate through point source controls alone. The mitigation measures for temperature and nutrient reductions and controls are not specific and must be designed to minimize pollutant loading in the basin commensurate with the projected increases. Specific nonpoint source mitigation agreements should be included in the Record of Decision along with quantifiable reduction targets. The following comments contain specific water quality impacts for individual water bodies affected by the WGFP. In addition, specific impacts to waste water treatment plants and other point sources affected by this project are included, as well as suggestions for mitigation.	Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict as described in response to Comment No. 13. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.
16	Impaired Waterbodies Potentially Impacted by the WGFP The action alternatives would impact multiple waterbodies in both East and West Slope watersheds. Many of these waterbodies are recognized as impaired and are on the State of Colorado's 2008 Clean Water Act Section 303(d) List of Water-Quality-Limited Segments Requiring TMDLs (the 303(d) List). Although Table 3-41 shows the 303(d) listing status for major lakes and reservoirs potentially impacted by the project, the DEIS does not summarize the projected impacts from this project on those impaired waters. Carter Lake and Horsetooth Reservoir are listed as impaired for their Aquatic Life Use due to mercury (associated with nutrient enrichment and reduced oxygen environments). In addition, Horsetooth Reservoir is impaired for D.O.. Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake are all acknowledged as exceeding applicable water quality standards (WQS). EPA objects to the high potential for the WGFP to exacerbate existing water quality impairments in these basins. High temperature and nutrient levels (and consequent low D.O. levels) may lead to additional, more severe, or further impairments potentially widespread throughout these watersheds, which could be difficult to remedy through point source controls alone. Further, any worsening of these conditions increases the future required efforts and costs associated with remediation and restoration. The proposed action appears to have the potential to directly impact the assimilative capacity for high temperatures and nutrients in all of the downstream reservoirs and streams, exacerbating the difficult cleanup plans and wasteload allocations required in any forthcoming "Total Maximum Daily Loads" (TMDLs). 12	16. It is true that the action alternatives would impact multiple water bodies in both East and West Slope watersheds. Of the five reservoirs and one lake analyzed in the DEIS, two are currently recognized as impaired and are on the State's 2008 303(d) List – Horsetooth Reservoir (dissolved oxygen (DO) and mercury – fish consumption advisory) and Carter Lake (mercury – fish consumption advisory). A summary of the 303(d) status of reservoirs is noted in Table 3-50. With respect to DO concentrations in Horsetooth Reservoir, it is difficult to directly determine the impacts from the action alternatives due to the model used

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17	EPA strongly suggests that BOR include in its ROD enforceable mitigation measures for temperature and nutrient reductions and controls designed to minimize pollutant loading in the basin, as well as controls to decrease chlorophyll a and undesirable algal growth, and maintain requisite D.O. for healthy aquatic ecosystems in these waterbodies. Specific enforceable nonpoint source mitigation agreements should be included in the ROD along with quantifiable reduction targets for each mitigation activity. EPA suggests that an initial 2 to 1 ratio of expected reductions to projected impacts be committed to, along with specified monitoring requirements to verify actual reductions. This allows the proponents to try multiple cost-effective remediation practices simultaneously, while monitoring the success of each activity. Ultimately, the proponents may choose whatever cost-effective remediation means provide mitigation commensurate with the projected impacts. Beginning with a 2:1 ratio of estimated reduction to credit for mitigation ensures that water quality standards violations will be minimized as the mitigation selection process is finalized. Monitoring of the mitigation measures success may be used to select the most preferable methods; to verify actual reductions occur; and to establish when sufficient mitigation has occurred. Below are specific comments for some of the individual water bodies affected by this project, and examples of mitigation measures EPA believes should be implemented.	for this reservoir. As described in the DEIS, the BATHTUB model does not provide a direct prediction of DO concentration. However, the relative magnitudes of hypolimnetic oxygen demand (HOD) and metalimnetic oxygen demand (MOD) predictions were used to compare existing conditions and the alternatives to provide insight on the relative potential impact on the DO concentration in the metalimnion or hypolimnion. Larger HOD or MOD values, as compared to existing conditions, indicate a potential for lower DO in the reservoir. Quantification of the likelihood of the DO concentration to be below the current water quality standards for an alternative is not possible based on the BATHTUB model predictions. It was determined that all alternatives (including the No Action alternative) may slightly reduce DO concentrations in both the metalimnion and hypolimnion over existing conditions. As described in the response to Comment No. 15, proposed mitigation measures to offset nutrient loadings in the Three Lakes system from WGFP pumping would benefit Horsetooth Reservoir and Carter Lake on the East Slope. As a result of these measures, impacts to water quality, including DO in water bodies on the East Slope should be negligible. The discussion on the limitations of the BATHTUB model was expanded in the FEIS and Tables 3-86 and 3-88 were updated to include additional information on the range of MOD and HOD values for Carter Lake and Horsetooth Reservoir.
18	***Colorado River***: The DEIS clearly acknowledges that Colorado River flows could regularly (and more frequently than under existing conditions) diminish to the required minimum 90 cfs flows during summer, and that those decreased flows could precipitate increased Colorado River instream temperatures. Decreased flows (see, e.g., DEIS Table ES-2) and subsequent increased summer temperatures could lead to exceedences of the applicable WQS for instream temperature (see DEIS p.3-96, and Figure 3-38). The DEIS modeling analysis is calibrated utilizing median USGS July water temperatures. To better estimate the more realistic impact(s) of the proposed alternative on instream temperatures, EPA suggests an additional analysis, relating daily discharge values to the 85th percentile daily water-temperature values. Since reduction in flow (discharge) will likely reduce the water depth of the river, in-stream temperatures are likely to increase, as is the frequency of days with elevated temperatures (and lower dissolved oxygen values). Modeling with median temperature data is insufficient to assess the more realistic effects of proposed water withdrawals EPA suggests that the EIS include these model calibration changes, and disclose the estimated effects, which we believe will be greater than disclosed. EPA further notes that exceeding the applicable temperature criteria could significantly and adversely affect aquatic life. Further, additional nutrient loading and decreased D.O. could contribute to future needs for nutrient reductions, and additional stresses on aquatic life (see DEIS pp. 3-97 through 3-100, and Figure 3-46). Temperature mitigation activities could include planting trees or other riparian vegetation to provide shading; providing increased flows during periods of high temperatures; and construction of instream refuge habitat such as pools and undercut banks. 13	With respect to the fish consumption advisories, it is difficult to predict the impacts to mercury concentrations in fish tissue for either Horsetooth Reservoir or Carter Lake due to decreases in DO and increases in nutrients. Please refer to the response to Comment No. 20. Also, as indicated above, the nutrient mitigation measures described in Section 3.8.4 of the FEIS would substantially reduce the potential for nutrient import and DO impacts in Horsetooth Reservoir and Carter Lake.. 17. Section 3.8.4 of the FEIS includes a detailed discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping and the effectiveness of those measures. These measures include upgrades to the Fraser WWTP and implementation of best management practices and other erosion control measures to reduce nonpoint agricultural sources of nutrient discharges in the Willow Creek drainage and elsewhere. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and Colorado River. Reclamation would require a monitoring plan to ensure that nutrient loadings to the Three Lakes are completely offset. See also response to Comment No. 15.

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19	***Three Lakes System: Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake***: The DEIS estimates that the proposed project could significantly increase the loading of both phosphorus and nitrogen into the Three Lakes System by as much as 12.7% (see Table 3-51), and chlorophyll a levels by as much as 6.8% (see DEIS Table 3-53). This system is already experiencing nutrient imbalance issues as evidenced by recent Colorado State Water Quality Control Commission (WQCC) actions; ongoing workgroup meetings to address nutrient loading; and monitoring and data sharing activities. Existing Windy Gap pumping is identified as the largest contributor of phosphorus, and the second largest contributor of nitrogen loading to the Three Lakes system (see DEIS Table 3-47). The proposed action would significantly increase phosphorus loading, decrease D.O., and decrease clarity (see Tables 3-48 through 3-55) to these waterbodies already recognized by the WQCC as receiving an abundance of nutrients (WQCC Grand Lake clarity WQS action, 2008). Mitigation measures in enforceable agreements can include: best management practices for agricultural and livestock production near the riparian corridor (e.g., buffer zones, nutrient minimization, livestock fencing and contour cropping); stormwater runoff control and retention for all nearby communities; incentive-based inspections and servicing of nearby septic systems; and operational changes in the Colorado Big Thompson system where practical.	18. The frequency at which 90 cfs flows are predicted to occur for existing conditions and the alternatives is described in Section 3.5.2.6 of the FEIS and quantified in Table 3-13. To evaluate potential mitigation for increased Colorado River stream temperatures during Windy Gap pumping, a multiday dynamic temperature model was developed. This approach allows for the direct computation of the metrics required for assessing predicted conditions as compared to temperature standards (MWAT and DM). Results of this analysis using a range of hydrologic conditions subjected to the very warm 2007 air temperatures indicate that increased exceedance of the chronic MWAT and DM standards are predicted to occur primarily in July and August. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days. Although in the past, the Windy Gap Project has only diverted water once in July, the WGFP would allow more water to be pumped in July and occasionally in August. As described in response to Comment No. 15, the Subdistrict developed a Fish and Wildlife Mitigation Plant to address temperature and other impacts to aquatic resources in compliance with CRS 37-60-122.2.
20	***Carter Lake and Horsetooth Reservoir***: Carter Lake and Horsetooth Reservoir are impaired for their Aquatic Life Use due to high mercury levels in fish tissue samples taken from their resident fish populations. Elemental mercury may be atmospherically deposited and reach aquatic systems through natural processes such as during sheet flow or snowmelt events. The methylation of mercury in Colorado reservoirs has been associated with nutrient enrichment and reduced oxygen environments, where low oxygen or anoxic conditions foster the methylation of mercury, which is subsequently biomagnified in the food web. Larger, longer-living, higher trophic level fish species (e.g., walleye, smallmouth bass, wiper) may have significant levels of toxic methyl mercury accumulate in their organs and flesh. Some of these species are important sport fish prone to high levels of consumption by certain segments of the population. This is a serious human health concern being actively studied by the CDPHE for future management decisions and remediation actions (www.cdphe.state.co.us/wq/FishCon/Analysis/).	19. The predicted increases in nutrient loading into the Three Lakes system are shown in Tables 3-69 and 3-70 of the FEIS, and predicted chlorophyll *a* concentrations and Secchi disk depths are shown in Table 3-71 to 3-76. After the DEIS was issued, it was discovered that historic water quality data from an incorrect location on Willow Creek were used for the analysis upstream of Windy Gap Reservoir. Since loading computations were affected, the loading analysis needed to be redone. In order to best reflect current conditions, data from 2005–2010 were used. The frequency of data collection was also greater during this period. Although the loading computations were corrected (results presented later in this section), the Three Lakes Model was not rerun because the change would have minimal effect on displayed impacts or differences between alternatives. See response to Comment No. 17 on proposed nutrient mitigation.
21	Additionally, Horsetooth Reservoir is impaired for D.O., with seasonal low oxygen levels associated with eutrophication in the reservoir. The action alternatives are predicted to be a major contributor of phosphorus and nitrogen loading, and subsequent decreased D.O. to Carter Lake and Horsetooth Reservoir (see DEIS pp. 3-113 through 114). The proposed action would significantly increase phosphorus loading (up to 11%), increase nitrogen loading (up to 5.8%), and increase chlorophyll a (>11% in both waterbodies). Further, the proposed action is predicted to decrease D.O. in both waterbodies (See Tables 3-65 thru 68). EPA strongly suggests mitigation to minimize pollutant loading which can include measures such as those described in the above comment on the Three Lakes System. 14	20. Conventional thinking, based on literature from eastern (Northeast U.S., Midwest, and Canada) systems, supports the idea that low oxygen levels (especially in the hypolimnion) are associated with high methylation rates and contaminated water, invertebrates, and fish. According to recent research conducted in Colorado, however, measures of oxygen in the water column are not necessarily indicative of the amount of mercury contamination in a given system or sport fish within that system.

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		In a study by Colorado State University and the Colorado Division of Wildlife, researchers are studying four reservoirs with and without fish consumption advisories in the state. The two reservoirs without fish consumption advisories had low (<1 mg/l) DO concentrations. The two reservoirs with fish consumption advisories did not. This goes against the conventional wisdom from the East Slope and shows that DO profiles may not be the most useful indicator of mercury methylation, and certainly not of mercury contamination in fish. According to the researchers (Lepak 2009): "Systems in which anoxic conditions were observed are relatively productive, which likely produced decaying material, contributing to hypoxia. However, while biomass decay can cause hypoxia, elevated nutrients can have the effect of reducing mercury concentrations in biota. When high nutrient availability stimulates population growth of algae and subsequently zooplankton, the result can be a higher amount of in-lake biomass available to accumulate a given amount of mercury. This process has the potential to reduce mercury concentrations in sport fish in relatively productive systems by limiting trophic transfer of mercury due to lower concentrations in prey regardless of oxygen levels. Thus, productivity may be working in two ways; one that reduces mercury concentrations in fish and another that increases them." For the WGFP alternatives, increases in nutrients and DO are predicted for both Carter Lake and Horsetooth Reservoir. According to the local research, it remains unclear what the net effect of lower DO (which could increase methylation) and higher nutrients (which could reduce mercury in sport fish) would have on mercury concentrations in fish tissue. In addition, nutrient mitigation measures described in the response to Comment Nos. 16 and 17 and discussed in Section 3.8.4 of the FEIS would offset nutrient loading to Horsetooth Reservoir and Carter Lake. Thus, impact to DO in these reservoirs is expected to be negligible. 21. Please refer to Comment Nos. 16 and 17 and the discussion of nutrient mitigation in Section 3.8.4 of the FEIS.

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22 23 24	Appropriate Use of Water Quality Standards and Exceedence EPA objects to the way in which the DEIS and Water Quality Technical Reports utilize WQS for D.O. in lakes and reservoirs, and then interpret those standards against existing lake and reservoir data profiles to determine WQS exceedence. Specifically, it appears that the DEIS is utilizing the "15th percentile of daily average epilimnion profiles," presented as "In-Lake Values" (e.g., see DEIS Table 3-26) for D.O. Issues regarding use of WQS include: 1) Hypolimnion exclusions and interpretation of stratification – It appears the DEIS and technical reports only analyze and present epilimnion (surface layer) data for some of the analyses, ignoring the readily available thermocline and bottom layer data. Further, it is unclear how the analyses establish thermal stratification; what data is used and what is excluded; and how the presented results are calculated. Under most circumstances lake data are treated as discrete samples, and directly compared to water quality criteria, one measurement at a time, for the entire water column. EPA notes that under certain circumstances, State assessment determinations evaluate data from the epilimnion and metalimnion (surface layer and thermocline) of a lake or reservoir, and do not evaluate data from the hypolimnion (bottom layer) – see below. Otherwise, all lake and reservoir data are compared directly to all applicable WQS, which would be the logical protocol to ascertain impacts in any EIS. It appears that for some parameters the DEIS and supporting documents are examining only epilimnion data (e.g. see Lake and Reservoir Water Quality Technical Report, Table 16) ignoring the important water quality measurements throughout the rest of the water column (i.e. metalimnion, or thermocline, and hypolimnion). Further, it is unclear what methodology is utilized to establish the epilimnion depth during dynamic stratification cycles and individual sampling events, and what data is used for the presented results. EPA is concerned that this is a misapplication of applicable water quality standards; ignores the existing impaired conditions and potential impacts that may occur in the thermocline and bottom waters (as well as their influence on surface layers); and that this may distort water quality analyses and presentations of projected impacts. A disclosure of existing conditions and potential impacts should include all available data to inform the potential effects of the proposed project. EPA is unable to evaluate the full impacts of the proposed project under this type of deficient analysis. The DEIS should examine and present the data for all depths of lakes and reservoirs – not just the epilimnion. The water quality technical reports should disclose the specific methodology and data establishing any thermal stratification for all lakes and reservoirs examined, discussing what data are utilized and excluded and how the presented results are calculated. This should be at a level of detail sufficient to allow for independent confirmation of conclusions. 2) Averaging Profile Data – Neither the DEIS nor the Lake and Reservoir Water Quality Technical Report provide sufficient detailed methodology to understand the analysis that is presented for water quality data in lakes and reservoirs. Nevertheless, it appears that the analysis averages D.O. profile data (and possibly other parameters), which may lead to masking the disclosure of existing conditions and projected impacts. (See the WQCC's stated protocol in Colorado Section 303(d) Listing Methodology – 2008 Listing Cycle, for D.O. data: http://www.cdphe.state.co.us/op/wqcc/SpecialTopics/303(d)/303dLM2008.pdf) 15	22. to 27. **1) Description of our DO Analysis:** This analysis was originally completed in late 2007 to early 2008 and updated in October 2011. The DEIS standards assessment analyses were based on numerous conversations with WQCD staff (e.g., Nuttle, May, Konowal, and Hegeman); state guidance documents (e.g., 2008 Listing Methodology and 2005 Guidance on Data Requirements and Data Interpretation Methods); State Regulations (Reg. 31); and spreadsheets describing how some Colorado reservoirs were assessed (provided by WQCD). During this process, we noted a number of inconsistencies between different documents, different staff, and even within the same document. Note that at one point, we were told by the State that our standards questions were "quite complex and broad ranging" and "an adequate response would take more time and resources that we (the State) have available." So we did the best we could with the information available to us. Based on the information we gathered, our DO analysis was thus: The DO standard was compared to the 15th percentile results, as well as to the entire epilimnion and metalimnion profile for each day. Note that in the 2008 Listing Methodology, it is stated under chronic standards – "Dissolved oxygen ("DO") is evaluated at the 15th percentile." Using epilimnion and metalimnion profile DO results, daily average DO values were calculated. The 15th percentile values of daily average values for each site (so one reservoir may have had more than one site being evaluated separately) were compared to the DO standard. Also, after a conversation regarding why the State was proposing to list Shadow Mountain on the 303(d) list when our analysis did not find it to be out of attainment, we added a secondary method of DO evaluation. Per WQCD staff, if all discrete profile samples in the epilimnion and metalimnion were out of attainment on any day, then the reservoir was found not to meet standards.

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24	"*Dissolved Oxygen: Each measurement within the mixed layer of an unstratified lake, or within the epilimnion and the metalimnion of a stratified lake, is subject to comparison with the standard, which is a 1-day minimum.*" The State Listing Methodology explains that averaging D.O. is an "acceptable metric for assessment," but this is not the preferred option for handling such data where direct comparison is possible. Individual profile data points should be compared to the WQS, and a synopsis of that comparison should be presented in the EIS and technical reports. Further, the methodology used should be detailed to a level sufficient to allow for independent corroboration of results and conclusions. The existing D.O. data should be analyzed and presented (at least in the technical reports) as discrete samples, without averaging, allowing insight into the potential impacts of the proposed project. Averaging such data risks masking over important D.O. dynamics in lakes and reservoirs. This is inconsistent with the WQCC's stated intentions for implementing water quality standards for a broad range of parameters (especially D.O.) that are to be utilized as instantaneous maxima or minima to protect aquatic life and human health at all times (not just on average). Profile data for D.O. should be presented and evaluated as individual points, and the methodology used should be documented at a level of detail sufficient to allow for independent confirmation of conclusions.	For our work, we had close to 300 DO profiles for the 5-year period being considered. Rather than going through the temperature data for each event, we plotted all events by reservoir and selected depths, which seemed to identify the epilimnion, metalimnion, and hypolimnion in the majority of cases. Therefore, the vertical profile data were inspected and the vertical extent of the layers was determined. The selected depths were then applied to all events for that particular reservoir. As a result, there are times when these depths did not correspond precisely to a corresponding temperature profile. The depths assumed by water body were: Water Body / Epilimnion Depth (m) / Metalimnion Depth (m) Carter Lake: 0-5 / 5-14 Horsetooth Reservoir: 0-6 / 6-21 Grand Lake: 0-6 / 6-17 Granby Reservoir: 0-7 / 7-17 Shadow Mountain Lake: 0-4 / 4-5
25	3) 15th Percentile and "In-Lake Values" for D.O. Data – It is inappropriate to utilize a percentile ranking statistic in presenting D.O. measurements, as is done throughout the DEIS and supporting technical reports (e.g. Lake and Reservoir Water Quality Technical Report, Table 24, D.O. footnote). Use of the 15th or 85th percentile of data, or as a screening tool, for some criteria is outlined in State WQS and methods documents. However, presentation of the 15th percentile of D.O. data is inconsistent with applicable WQS. Utilizing a 15th percentile of this criterion would afford little to no protection of aquatic life propagation and growth in the lower ranked 14% of reported profiles, and could lead to extensive and frequent under-reporting of low D.O. conditions. Further, such presentation is misleading in the DEIS and probably masks the actual existing conditions and projections of potential impacts. Additionally, EPA finds the presented "In-Lake Value" for D.O., and subsequent comparison to applicable criteria particularly problematic. Creating a novel "In-Lake Value" for the DEIS, and disclosing the use of this characterization only in footnotes, may further limit the public's ability to assess and understand actual existing conditions and projected impacts from the proposed project. This practice does not foster open disclosure of existing observations and projected impacts. D.O. criteria are established as 1-day minima in Colorado WQS, designed to protect the growth and propagation of aquatic life at all times. The DEIS and supporting technical reports should present the full range of data values (without any percentile ranking or creative classification) for all D.O. profiles, analyses, presentations, and conclusions.	Although we initially considered the spawning standard, we removed it based on conversations with WQCD staff.
26	4) Spawning Season D.O. Criteria – Both the DEIS and the Lake and Reservoir Water Quality Technical Report appear to consider spawning seasons and early life stages of aquatic life, but do not appear to use the spawning season D.O. criterion (e.g,. Lake and Reservoir Water Quality Technical Report, Table 16, D.O. footnote, elsp). A spawning season D.O. criterion (typically 7.0 mg/L) is assigned to many of the assessed lakes and reservoirs by the WQCC, and applied 16	**2) Recent Activities:** Recently a significant amount of activity has occurred in Colorado regarding assessment of DO standards in lakes and clarifications on the listing methodology. These activities include the development of the 2010 Listing Methodology, a standards framework workgroup meeting on March 16, 2009, an issuance of EPA concerns on July 14, 2009, and a recent standards framework workgroup meeting on September 21, 2009. The items discussed include: • Making clarifications to DO assessment methodologies in the 2010 Listing Methodology. • A recent proposal by WQCD to change the assessment to only focus on the top 0.5 to 2 meters of reservoirs/lakes greater than 5 meters deep. This includes using the average concentration for that depth.

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26	with seasonality dependent upon the species present (see e.g. Regulation 31- The Basic Standards and Methodologies for Surface Water - Spawning, or Colorado Section 303(d) Listing Methodology – 2008 Listing Cycle, Spawning Season DO Criteria). The DEIS and supporting documents should utilize the 7.0mg/L criterion wherever, and whenever, applicable for all D.O. profiles, analyses, presentations, and conclusions.	• Questions from EPA regarding (July 14, 2009): o The TVS – Is it a minimum 1-day average or a 15th percentile? o How to more consistently define layers? o How should the refuge concept be implemented? o What to do about seasonal/spatial variability? Note the reference by EPA to a 15th percentile as recently as July 2009. Obviously, the assessment of DO in lakes and reservoirs was in a state of flux. Since then, the WQCC adopted a method to focus predominantly on the upper two meters (0.5 to 2m) for reservoirs greater than 5 meters deep. This is very different from the methodology used in the DEIS and would lead to different results. Additionally, Horsetooth Reservoir has been classified as a warm lake since the original analysis, changing its DO standard to 5 mg/L.
27	5) WQS Exceedence and Impairment Projection – The use of the above data exclusions, averaging, presented statistics, and applicable criteria raise questions wherever the DEIS discloses if WQS are currently being exceeded (e.g. see DEIS Table 3-40, far right column). The DEIS and supporting documents should be amended to address the issues above, and the impairment status for individual waterbodies should be redone implementing these changes. Because impairment determinations allow for the exclusion of hypolimnion data only under specific, limited circumstances, the analyses should include all data wherever possible. In any instances where hypolimnion data is not used, the analyses should specify those circumstances. Specifically, the hypolimnion exclusion is utilized only where a waterbody is strongly thermally-stratified with colder, denser bottom waters becoming isolated from warmer, less-dense surface waters, sequestering the hypolimnion from mixing and other processes. In order to utilize this hypolimnion assessment exclusion, one would first establish that strong thermal stratification exists (showing individual temperature profiles), and then determine to what depth (where the base of the thermocline exists) impairment determinations are still applicable for individual profiles. Otherwise, all lake and reservoir data are generally compared directly to all applicable WQS as outlined in CDPHE protocol for impairment determinations (see WQCC Colorado Section 303(d) Listing Methodology – 2008 Listing Cycle: http://www.cdphe.state.co.us/op/wqcc/SpecialTopics/303(d)/303dLM2008.pdf	To update the analysis to the current standards, data were reviewed for the lakes which showed no DO standards exceedances under the previous analysis (Grand Lake, Shadow Mountain Reservoir, and Carter Lake). Current standards were also met for these water bodies, so no changes were made to the tables or text for these lakes in the FEIS. For the two lakes which did not meet the pre-2010 DO standards in the DEIS analysis (Granby and Horsetooth), data were reassessed against the current DO standards. That assessment showed that current DO standards are met in both Granby and Horsetooth. Because this was a change in findings from the DEIS, the FEIS was updated to present the findings for Granby and Horsetooth.
	Impacts to Wastewater Treatment Plants	
28	The potential impacts to wastewater treatment plants (WWTPs) depends on whether the plants are located on the West Slope or East Slope of the Continental Divide. On the West Slope (Hot Sulphur Springs and Three Lakes WWTPs), where water is being taken out of the system, the potential impacts of this project are decreased upstream flows which will reduce available pollutant assimilative capacity in the receiving waters (Colorado River and Willow Creek). This will likely result in more stringent National Pollutant Discharge Elimination System (NPDES) permit limits for, e.g., ammonia, which may require additional treatment facilities or processes. Any additional treatment will require additional capital and/or operational expenditures and could be expensive particularly for lagoon treatment systems like the Hot Sulphur Springs facility. If required, treatment methods or other controls for other pollutants like metals, e.g., selenium, can also be costly to the facility. The reduced low flow impacts appear to be greatest for the proposed action (see DEIS p. 3-92, 3-101). This impact should be better addressed in the EIS.	**3) EPA's WGFP Comments:** EPA takes issue with how the DO standards assessment was completed in the DEIS. Specifically, using the 15th percentile, not using the spawning standard, and not evaluating every data point are called out. We hope that the description above in 2) above, sheds some light on what was done and why. The EPA requests that "the existing DO data should be analyzed and presented as discrete samples, without averaging, allowing insight into the potential impacts of the proposed project." We see two problems with this request. First, the method requested by the EPA is not consistent with the State's methodology. We think it is important to be consistent with State practices and the conclusions reached in the DEIS are the same conclusions reached by the WQCD. Second, the modeling approaches used for predicting results for Grand Lake and the reservoirs do not result in DO profiles. For the Three Lakes, an average DO concentration is predicted for each layer over time. Therefore, it is not possible to conduct an analysis directly comparing predicted DO profiles to standards. Predicted conditions for the alternatives are compared to existing conditions and the No Action alternative for each reservoir and Grand Lake in the DEIS.
29	On the East Slope, increased pollutant loadings from project participant WWTPs would be required to meet Colorado's WQS including antidegradation provisions for the receiving	
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		28. The Three Lakes WWTP discharges into an unnamed tributary to Willow Creek, the flows of which would not be changed by the WGFP; therefore, the WWTP would not be affected by the WGFP. Willow Creek flows could decrease under certain conditions with the WGFP. An analysis of potential effects to the water quality of Willow Creek was included in the DEIS and was revised for the FEIS in Section 3.8.2.4. The analysis showed that for the largest potential changes in flows that would occur in June, July, and August, using the maximum allowable discharge from the Three Lakes WWTP and assuming no reductions in concentrations within the unnamed tributary down to Willow Creek, acute and chronic ammonia, dissolved iron, and dissolved copper standards would not be exceeded under any of the alternatives. The Hot Sulphur Springs WWTP's effluent limits were calculated based on design acute and chronic low flows of 38 and 59 cfs, respectively (see Hot Sulphur Springs WWTP certification). These flows are lower than would be experienced in the Colorado River at Hot Sulphur Springs under any of the WGFP alternatives because no Windy Gap diversions would occur when the flow of the Colorado River below Windy Gap reaches 90 cfs. Because there would be no reductions in river flows during dry years due to the WGFP, and because WGFP diversions would not occur when the flow of the river is at or below 90 cfs, the anticipated change in the dilution flows upon which future conditions would be based would be small, if any. Using DFLOW, the program used by the Colorado WQCD to compute monthly low flows for WWTP discharge permits, the calculated monthly low flows for existing conditions and the Preferred Alternative were the same. Additional information on this issue was added to Section 3.8.2.4 of the FEIS. As previously discussed in the response to Comment No. 17, the Subdistrict would provide mitigation for increased nutrient loadings to the Three Lakes from WGFP diversions. These measures would improve the existing water quality in the Fraser River, Willow Creek, and the Colorado River.

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29	waters. Where there is no additional pollutant assimilative capacity available, additional treatment will be required which is a potentially expensive impact.	29. The East Slope Participants' WWTPs will experience increased discharges due to future growth that would occur with or without the WGFP. In addition, the WWTPs will likely need additional treatment due to future changes in nutrient and other water quality standards, and implementation of Total Maximum Daily Loads (TMDLs) on some of the streams. WWTP operators must regularly renew their CDPS permits with the Colorado Department of Public Health and Environment to be up to date on current in-stream conditions and any upgrades to their WWTPs.
30	The DEIS does not discuss potential impacts to the Estes Park water and sewage facility from the additional nutrient loading which will occur in the Big Thompson River due to this project. The DEIS indicates that a flow increase in the Upper Big Thompson River below Lake Estes from additional Windy Gap deliveries (9 percent for the proposed action) will bring additional nitrogen and phosphorous load (see DEIS p. 3-109). The impacts to the Estes Park facility should be added to the discussion in the EIS.	30. The Subdistrict's proposed nutrient mitigation measures (FEIS Section 3.8.4) would provide mitigation for increased nutrient loadings to the Three Lakes and subsequent deliveries to the East Slope; thus, impacts to the Estes Park water and sewage facility should be minimal.
31	Increased flows (and pollutant loadings) at a point source may 1) trigger antidegradation review on reviewable segments and result in more stringent NPDES permit limits at the time of permit reissuance (every 5 years), and 2) decrease available pollutant assimilative capacity available for downstream point sources. In addition, on CWA Section 303(d) listed waters, pollutants driving the listing have no available assimilative capacity and increased loadings are not allowed from point sources. For waters having a completed TMDL for a pollutant, point source loadings are limited by the approved wasteload allocation in the TMDL, and no additional loading of the pollutant from a point source is allowed to be permitted without a change in the EPA-approved TMDL. When water deliveries from the proposed alternative and other alternatives (including the no action alternative) result in an increased point source discharge flow, pollutant loads are increased and additional costs to treat increased pollutant loads are likely to occur for the affected point source.	31. Additional wastewater treatment is likely needed in the future with or without the WGFP due to growth and increased water use on the Front Range. See also response to Comment No. 29.
	STREAM MORPHOLOGY	
32	The DEIS states that flushing flows in the Colorado River equal to or greater than 450 cfs occur about 45 days in an average year and 103 days in a wet year per year under existing conditions (see DEIS p. ES-11). Under the proposed action, the flushing flows would occur 36 days in an average year (35 days for the other action alternatives) and 93 days in a wet year for all action alternatives (see DEIS Table 3-22). In addition, stream morphology impacts were assessed by comparing the frequency of bankfull discharge (equal to or greater than 1,240 cfs at Hot Sulphur Springs) under existing and proposed conditions and by comparing changes in the range of channel maintenance flows. The DEIS states that the frequency of flushing flows and bankfull discharge would remain adequate to transport sediment and prevent deposition, and therefore no mitigation for stream morphology impacts is proposed. Furthermore, the DEIS states that the differences in channel maintenance flows would be small and unlikely to measurably alter channel morphology or sediment movement. EPA is concerned that these analyses do not adequately characterize potential impacts to the stream morphology and associated ecological communities of the Colorado River. The DEIS states that channel maintenance flows are the flows considered necessary to maintain the physical characteristics of a stream channel and provide benefits to the stream ecosystem by conveying water and eroded materials, preventing vegetation establishment in the channel, sustaining aquatic ecosystems, temporarily storing flood flows on the floodplain, and 18	32. As stated in Section 3.7 of the FEIS and Section 6.2 of the Water Resources Technical Report (ERO and Boyle 2007), despite changes that have occurred in the Upper Colorado River Basin since 1938 (especially flow changes due to C-BT diversions and the construction of Granby Reservoir), the form and structure of the Colorado River channel, banks, floodplain, and watershed within the study area has changed very little. The upper Colorado River is a morphologically stable stream. Because regulation of the river, which began in 1949 when water began to be stored in Lake Granby, has not substantially altered the morphology of the Colorado River channel and banks below the dam during the past 60 years, the use of Schmidt and Potyondy's methodology for analyzing channel maintenance flows is considered appropriate for the study area. While instantaneous peak flows were higher during the first half of the 20th century, the decrease in peak flows that occurred during the second half of the 20th century did not alter stream morphology or sediment transport in the Colorado River. Although the Colorado River flow has been quite variable, in part due to diversions and storage, only minor changes in river morphology have been detected in aerial photos taken between 1938 and 2005 below Granby Reservoir and below Windy Gap Reservoir (Ward and Eckhardt 1981; ERO and Boyle 2007). In addition, recent cross-sectional analyses completed for aquatic resources, located 8 to 10 miles downstream of Windy Gap Reservoir, showed no

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32	maintaining healthy streambank and floodplain vegetation (see DEIS 3-60). The DEIS presents an analysis of channel maintenance flows consistent with the Schmidt and Potyondy (2004) methodology. EPA is concerned that this methodology has been inappropriately applied to assess changes in channel maintenance flows from the proposed project. According to Schmidt and Potyondy (2004), "(t)he approach is appropriate for quantifying channel maintenance flows on perennial, ***unregulated***, snowmelt-dominated, gravel-bed streams with alluvial reaches" (emphasis added). As stated in the DEIS and illustrated in Figure 1 and Table 1 of this letter, the flow regime under existing conditions is substantially altered through regulated water diversions in the basin. For example, the 25-year instantaneous peak flow in the period of record from 1904 to 1949 has, under existing conditions, a return interval of 200 years not 25 years (see Table 1 above). Both the magnitude and frequency of flow events are substantially altered compared with unregulated conditions on the Colorado River, and as such, applying this methodology likely significantly understates the potential impacts to stream morphology from this proposed project. As stated in the Water Resources Technical Report, the frequency, magnitude and duration of flow events affects channel dynamics. In snowmelt dominated systems like the Colorado River, much of the work on the channel is done by the spring snowmelt peak flows, and channel geometry and complexity respond to these dominant, or bankfull, discharges of water and sediment. The river stage associated with bankfull discharge is considered to be the point at which the river begins geomorphic "work" on the entire channel system, and higher flows extend the duration and magnitude of this work. Thus, river stage may be a better indicator of the effectiveness of flows on channel geometry and the physical habitat template for aquatic communities than bankfull discharge. The additional withdrawal of flow from the Colorado River due to the proposed project will probably cause bankfull stage to be reached less frequently, resulting in less capacity within the river system to maintain adequate conditions for aquatic ecosystem integrity (e.g., temperature, D.O., channel habitat, back-water areas for juvenile amphibians, fish, endangered species, etc).	evidence of recent changes to stream morphology or sediment deposition in the Colorado River near Parshall (Miller 2008). Sediment discharges to the Colorado River are derived from upstream sources, tributary inflows, overland flow, channel bed, and banks (Ward and Eckhardt 1981). The igneous and metamorphic rocks of the Colorado River headwaters are fairly resistant to weathering and, therefore, contribute little sediment to the river. A previous study showed that the Colorado River channel bed and banks are well armored (Ward and Eckhardt 1981). This study determined that the largest tributary source of sediment in the study area is Troublesome Creek; other tributaries are minor sources. The sediment supply was found to be low, and the transport capacity of the river greatly exceeded supply (Ward and Eckhardt 1981). A recent evaluation was completed of streamflow versus shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm, or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations located from below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm, or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows an increase in flows of 150 cfs or less, decrease in flows of 200 cfs from 14 percent to 10.5 percent of the time, decrease in flows of 500 cfs from 7 percent to 5 percent of the time, and decrease in flows of 1,000 cfs from 4 percent to 3 percent of the time. At the gage near Kremmling, the flow duration curve shows an increase in flows of 1,200 cfs or less, and a 1 percent or less decrease in higher flows. Additional discussion was added to the FEIS in Section 3.7.2.3.
33	The diversion of water from the Colorado River to meet water supply needs will alter the natural hydrology downstream of the diversion point, thus affecting the aquatic ecosystem downstream. Diversion of the snowmelt peak flows in wet and average years will reduce the frequency of medium and high flow events, which will likely, in turn, affect stream morphology, instream water quality, the physical habitat template of downstream aquatic communities, food web structure, spawning, egg hatching, and migration cues for fish, and the ability for riparian species recruitment and inundation of backwater and floodplain habitats. To truly understand what the diversion will mean for the aquatic ecosystem and hydrology downstream of the diversion point, EPA suggests that the following analyses be performed: • Establish/characterize the relationship between bankfull discharge and river stage at monitored points, e.g., at two gauged points downstream from the withdrawal point on the Colorado River; • Model the stage of the river and projected effects of the project alternatives on stage at these gage locations; 19	See also response to Comment No. 2. For evaluating changes to stream morphology, analyzing changes in streamflows is a standard method of analysis. Where stage/flow relationships have been developed, the analysis could be translated to stage change effects to stream morphology; however, it would not add substantially to the flow analysis. The IFIM model of aquatic habitat accounts for depth in determining available fish habitat. In addition, the discussion above shows that sediment transport in the river would be maintained. Additional discussion was added to Section 3.7.2.3 of the FEIS on the channel maintenance flows needed to maintain ecological functions. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) address Colorado River temperature concerns with the proposed project and includes increased flushing flows to assist with channel maintenance.

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33	• Document the current pattern of river stages and consequent (existing) habitat availability, temperature and D.O. levels. Then model, with the expected decreases in flow and resultant decreases in river stage, the change in frequency that stream temperature and D.O. meet (or conversely exceed) water quality criteria and that physical habitat parameters are maintained; • Assess the potential for threshold responses of the aquatic community. These analyses should be done both within the context of the direct and indirect impacts of this project as well as cumulative impacts of this and other reasonably foreseeable actions (e.g., Moffat Collection System and climate change).	33. An analysis of stream morphology was completed for the projected changes in hydrologic conditions, including an assessment of sediment transport at an IFIM study site used in the aquatic habitat modeling. As described in the response to Comment No. 32, further discussion on sediment transport from the 2D modeling was added to Section 3.7.2 of the FEIS. Water quality was modeled as a function of existing and predicted future conditions. Results indicate that DO concentrations in the Colorado River would decrease slightly (approximately 0.1 mg/L), but DO concentrations would remain above the current water quality standard and are not expected to impact aquatic life. Dynamic temperature modeling simulated potential increases in Colorado River temperatures above the chronic MWAT and acute DM standards. Temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) would reduce the potential for temperature exceedances. The river stage changes are part of the habitat modeling. Habitat change was modeled throughout the range of expected flows. The combined results of the water quality modeling, hydrology analysis, and sediment transport analysis all indicate that the ecological function of the river would be maintained at most times without mitigation. Physical habitat for fish was simulated using daily flow data. There are short (2- to 4-week) periods when reductions in physical habitat occur for some life stages of some aquatic species (FEIS Section 3.9.2.3). The proposed project would adhere to the minimum streamflow requirements below Windy Gap Reservoir and would maintain the habitat needed for primary and secondary aquatic life productivity. No impact to existing trophic levels in the lakes and reservoirs are expected. Sections 3.8.4 and 3.9.4 of the FEIS includes mitigation measures designed to address the impacts to aquatic habitat. Also see response to Comment No. 13. The cumulative effects analysis of stream morphology and aquatic life were conducted using the same methods as direct effects based on reasonably foreseeable actions including the Moffat Project.
34	The DEIS states that changes in streamflow associated with the alternatives are not expected to significantly impact stream morphology or change sediment transport or deposition. In part, the Stream Morphology conclusions were made based upon a comparison of frequency of exceedence of the 2-year peak discharge (estimated to be 1,240 cfs at Hot Sulphur Springs) under existing and proposed conditions. EPA believes the conclusions of this analysis are misleading. For example, in Section 3.7.3 Cumulative Effects (see DEIS p. 3-65), the DEIS states that under current conditions, the 2-year peak discharge was exceeded 4% of the days within the study period and that under the proposed action, this discharge would be exceeded 2.5% of the days. The DEIS conclusion, that the 2-year peak discharge would occur 1.5% less frequently is somewhat misleading. For example, if the frequencies were examined on a yearly basis, there would be a reduction in peak discharge occurrence from 15 days to 9 days. This mischaracterization was also made in Section 3.7.2.3 (see DEIS p. 3-63). EPA requests that the applicant modify these descriptions and consider changes in the conclusions to reflect the potential reduction in frequency of peak flows.	34. The part of Sections 3.7.2.3 of the EIS that discusses the flow duration curves for Hot and would become nearly the same as existing conditions for the highest flows. Table 3-32 in the FEIS provides the changes in magnitude, frequency, and timing of channel maintenance flows in the Colorado River at Hot Sulphur Springs. The information in this table helps explain the types of Sulphur Springs and Kremmling was modified to clarify the discussion. For example, at Hot Sulphur Springs, flows of 1,000 cfs would decrease by 25% from about 4 to 3% of the time, but for flows exceeding 1,000 cfs, the decrease in frequency would be less. According to the channel maintenance flow analysis, the range of channel
35	In the Water Resources Technical Report, Table 3 shows the average total historical monthly Windy Gap diversions at Windy Gap reservoir for April through July as 11,080 AF. However, Table 3-2 of the Draft EIS shows the average annual flow under existing conditions for the Windy Gap diversions used for the model as 36,532 AF. It is not clear why this diversion flow used for the model is so much higher than the average historical diversion. Use of the higher flow in the model can result in significant underestimation of the hydrological impacts associated with the project.	
36	**AQUATIC LIFE IMPACTS** Project-induced changes in flow characteristics will likely impact aquatic life in the upper Colorado River Basin ecosystems due to changes in aquatic habitat, including changes in stream morphology and water quality. In the DEIS, impacts to aquatic life were concluded to be minor, or in some cases beneficial, however EPA believes the analysis did not adequately consider potential impacts to aquatic communities due to changes in water quality or physical habitat. Increased nutrient loading, reductions in D.O. and instream temperature increases are all impacts disclosed in the DEIS, and may result in an inability to support aquatic life use standards due to expected changes in ambient environmental conditions. Changes in these conditions can 20	

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		maintenance flows at Hot Sulphur Springs (510 to 6,520 cfs) would occur during 2 to 13% less years under all of the alternatives than under existing conditions, and the duration of such flows in years when channel maintenance flows occur range from 4 days less to 2 days longer. Also, a recent analysis of the Breeze station, a riffle site located downstream of the Williams Fork, showed that fine sediments (2 mm) were mobilized at flows of about 50 cfs, and fine gravel (8 mm) was mobilized at flows of 200 cfs. The flow duration curve for Hot Sulphur Springs shows an increase in the frequency of flows of less than 150 cfs, and a decrease in flows of 200 cfs from 14 percent to 10.5 percent of the time. 35. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 acre-feet per year (AF/yr), which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005 (presented in Table 3 of the Water Resources Technical Report). Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions if the WGFP is constructed. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 of the FEIS on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 (since Granby Reservoir last filled) averaged about 27,450 AF/yr. That average includes 2002 and 2004, when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment indicates that the percent increase in diversions compared to existing conditions is underreported; therefore, future depletions under the Proposed Action are underreported. That is incorrect for the following reasons. Impacts would be understated if the difference in Colorado River flows below Windy Gap was 9,552 AF/yr on average, which is the difference in Windy Gap pumping under the Proposed Action (46,084 AF/yr) and existing conditions (36,532 AF). However, the average difference in flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the increase in net depletion to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. The increased net depletion to the Colorado River is much greater than the increase in Windy Gap diversions under the Proposed Action; therefore, potential impacts are not minimized. Pumping Windy Gap water that is later spilled is a re-timing of flows; not a depletion to the river. In other words, a considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water that could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from

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		Granby Reservoir back to the Colorado River. For example, the net depletion to the Colorado River for the existing conditions scenario is about 17,750 AF (36,530 AF of Windy Gap diversions (Table 3-6) less 18,780 AF of Windy Gap spills (Table 3-5). The net effects of Windy Gap operations also can be summarized by reviewing estimated Windy Gap deliveries through the Adams Tunnel. Average annual Windy Gap pumping under existing conditions is estimated to be 36,532 AF/yr; however, after spills, diversion shrink, carryover shrink, and allocations to Middle Park Water Conservancy District (Middle Park), only 11,500 AF/yr of Windy Gap water is delivered through the Adams Tunnel, as shown in Table 3-6 of the FEIS. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action. In summary, Reclamation believes that the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources.

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36	influence the abundance and distribution of native and sport fish, macroinvertebrate and algal communities, and may lead to a community dominated by species tolerant to degraded water conditions.	36. See response to Comments No. 13 and 33. Stream morphology is not expected to change with the proposed action. Flushing flows would be maintained with the proposed action to scour fines and maintain spawning conditions and macroinvertebrate habitat. The decrease in DO is small and the total DO would remain above the state standard. As such, there is no indication that the water conditions would be "degraded". There is no change to the aquatic community structure or function with the proposed action.
37	The DEIS states that project-induced changes to channel morphology and sediment movement are minor, however EPA believes that these analyses do not adequately characterize potential impacts to the stream morphology and associated ecological communities of the Colorado River. Spawning site availability for fish, habitat heterogeneity (e.g., riffle and pool complexes) and refugia for aquatic macroinvertebrates is largely influenced by changes in substrate characteristics and channel complexity associated with the timing, frequency and magnitude of flow events. Furthermore, peak flows that mobilize and transport medium sized sediments (sands and gravels) abrade periphyton assemblages from larger substrates, and loss of this abrasive ability with reduced flows will facilitate periphyton growth and survival and alter the algal and macroinvertebrate assemblages. It is important to note that project-induced reductions in habitat availability are based upon existing conditions, which represent a substantially altered and regulated flow regime. Further, piecemeal impacts due to this project and other reasonably foreseeable actions have the potential to significantly and permanently reduce the quality of habitat for aquatic communities. EPA suggests that a more complete analysis of impacts to aquatic resources be conducted, including a meaningful integration of water quality and stream morphology impacts. Ecological modeling and analyses should be conducted using a daily time-step, instead of a montly time-step that may mask discharge values that occur for only a few days within any given month.	37. All evidence suggests that the Upper Colorado River is a morphologically stable stream and that flows have and would continue to be adequate to prevent sediment aggradation and degradation in the study area. The required periodic flushing flow of 450 cfs should be sufficient to transport fine sediments (2 mm or finer), preventing the deposition of fine sediments in the stream bottom. Flows greater than 450 cfs would continue to occur with a frequency similar to existing conditions, as evidenced by flow duration curves and Table 3-32 in the FEIS. The FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. See response to Comment No. 32 above for more information on the analysis of stream morphology. Previous responses to Comment Nos. 2, 13, and 33 address aquatic resource comments. The 2D study of aquatic habitat on the Colorado River was conducted using daily hydrologic data for a range of dry, wet, and average flow conditions, and is the best available method for evaluating the frequency and magnitude of changes in habitat. The time series analysis shows the seasonal change in habitat for the entire year, even during months when Windy Gap Firming Project does not operate.
	COMPLIANCE WITH THE CWA SECTION 404(b)(1) GUIDELINES	
38	EPA is providing comments on the CWA Section 404 permit application for the WGFP in a separate letter to the Corps. EPA understands the Corps intends to use the BOR EIS to satisfy the requirements of the CWA Section 404(b)(1) Guidelines (Guidelines). The Corps must ensure compliance with the Guidelines prior to issuance of a CWA Section 404 permit for the discharge of dredged or fill material into waters of the United States. EPA disagrees with the narrow scope of the purpose and need statement in the DEIS for the issuance of a CWA Section 404 permit. EPA believes the basic (overall) project purpose is to provide a portion of the existing and future water supply demands of project participants. EPA believes the DEIS analysis is not in compliance with the Guidelines due to: 1) an improperly truncated review of alternatives (40 CFR 230.10(a)); 2) a lack of meaningful analysis regarding potential violations of State water quality standards (40 CFR 230.10(b)); 3) a lack of meaningful analysis regarding the potential for the proposed action to cause or contribute to significant degradation of waters of the U.S, specifically in light of secondary and cumulative effects of this and other reasonably foreseeable water projects within the Upper Colorado River Basin (40 CFR 230.10(c)); and 4) insufficient mitigation (40 CFR 230.10(d)). In addition, based on the information currently available in the DEIS, EPA believes the proposed action will result in substantial and unacceptable impacts to the Upper Colorado River 21	38. The Guidelines (40 CFR 230.10 (a)(4)) indicate that, for actions subject to NEPA, where the Corps is the permitting agency, the analysis of alternatives required for the EIS will in most cases provide information for the evaluation of alternatives under the guidelines. The Corps believes the EIS provides adequate information for the evaluation of alternatives under the guidelines. Appendix B of the FEIS discusses appropriate compliance with the guidelines. The Corps will issue a 404 Permit for the LEDPA and will ensure compliance with the guidelines.

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		The Corps believes the purpose and need statement in the WGFP DEIS adequately represents the applicant's intentions and needs to deliver water as anticipated from the original Windy Gap Project, appropriately represents the basis against which the types and number of alternatives are evaluated, and meets the requirements and spirit of the guidelines in the public interest. Simply asserting disagreement regarding scope of the purpose and need statement without providing substantive justification for such an assertion, does not obligate the Corps to respond with a lengthy reiteration or explanation of its methodology (NEPA's Forty Most Asked Questions, Question 29a). The Corps defines the basic project purpose to determine if the activity is water dependent (i.e., requires access or proximity to, or siting within, a special aquatic site in order to fulfill its basic purpose, 40 CFR 230.10(a)(3)). The basic project purpose is water supply. Since water supply facilities do not necessarily require access or proximity to, or siting within, a special aquatic site, the project is not water dependent. The Corps defines the overall project purpose to identify and evaluate practicable and less environmentally damaging alternatives (see 40 CFR 230.10(a)(2)). The overall project purpose of the WGFP is to deliver a firm annual yield of approximately 30,000 AF of water from the existing Windy Gap Project to provide a portion of the water deliveries anticipated from the original Windy Gap Project and to provide up to 3,000 AF of storage to firm water deliveries for the Middle Park Water Conservancy District.

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38	Basin, which EPA has determined is an aquatic resource of national importance (ARNI) in accordance with the CWA Section 404(q) and Part IV(3)(b) of the 1992 Memorandum of Agreement between EPA and the Department of the Army. In its letter to the Corps regarding the WGFP CWA Section 404 permit application, EPA is requesting the Corps reconsider the availability of potentially less environmentally damaging practicable alternatives.	With regard to the comment that the DEIS is not compliant with the guidelines: 1) It is the Corps' belief that the range of alternatives evaluated in the WGFP DEIS provides an appropriate scope for the evaluation of alternatives under the guidelines and, therefore, adopts the DEIS range of alternatives as adequate for review under the 404 Permit Application. As discussed in the WGFP Alternative Plan Formulation Report (February 2003) and Alternatives Report (September 2005), approximately 170 alternatives were evaluated, including nonstructural and institutional opportunities, new reservoir sites, existing reservoirs with enlargement potential, and ground water aquifer storage. The DEIS rigorously explored and objectively evaluated all reasonable alternatives to meet the project purpose and need. A decision maker need not consider alternatives beyond the range of alternatives discussed in the relevant environmental documents (NEPA's Forty Most Asked Questions, Question 1a).
39	**MITIGATION** EPA believes the mitigation proposed for water quality impacts is not sufficient to address the impacts disclosed in the DEIS (see DEIS p. 3-292). Impaired waters are projected to be further impaired due to this project, therefore the mitigation measures should be much more definitive than currently proposed in the DEIS. EPA has provided suggested water quality mitigation measures in the water quality section above. In addition, the DEIS does not contain proposed mitigation for the stream morphology impacts. EPA strongly recommends identifying appropriate mitigation measures in the EIS and including such mitigation as enforceable measures in the ROD.	2) As discussed in Section 3.8.2 of the DEIS, it is the Corps' belief that meaningful and adequate water quality analyses were made on the Colorado River below Granby Reservoir, in Willow Creek below Willow Creek Reservoir, and in several East Slope streams (including the Big Thompson River, St. Vrain Creek, North St. Vrain Creek, Coal Creek, Big Dry Creek, and the Cache la Poudre River). Potential effects to water quality also were evaluated in the Three Lakes system (Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake), Carter Lake, and Horsetooth Reservoir, as well as the predicted water quality for new reservoirs. In addition, simply asserting a lack of meaningful analysis, without providing substantive justification for such an assertion, does not obligate the Corps to respond with a lengthy reiteration or explanation of its methodology (NEPA's Forty Most Asked Questions, Question 29a). Provided the applicant meets all conditions of the Section 401 Certificate issued for the project by the Colorado Water Quality Control Division, a required condition of a 404 Permit, the WGFP should not violate state water quality standards. 3) Impacts from WGFP would result from two general actions: first from the diversion and storage of water from the Colorado River; and second, from the surface disturbance required for construction of reservoirs and associated facilities. Impact assessment of waters of the U.S. is discussed significantly and adequately in Chapter 3, Affected Environment and Environmental Consequences, along with multiple discussions of secondary and cumulative effects analyses. 4) In compliance with the EPA and Corps 1990 MOA on sequencing, avoidance and minimization of actions affecting wetlands and perennial streams are discussed in Section 8.1.4 of the Alternatives Report (September 2005). Mitigation is discussed in the FEIS and, if a Section 404 Permit is issued, evaluated and presented in the Section 404 Permit decision documents. The EPA makes a statement that the proposed action will result in substantial and
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		unacceptable impacts to the Upper Colorado River basin and, therefore, is an ARNI, but does not provide any evidence for this designation other than citing CWA general references. It is the Corps' position that, in light of the adequate and appropriate resource evaluation and impact assessment in the FEIS, reconsideration of the availability of potentially less environmentally damaging practicable alternatives, without substantive basis for the reconsideration, is not necessary. 39. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Chapter 3, Environmental Consequences. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS. No specific mitigation measures were identified for stream morphology impacts because the analysis of flushing flows, frequency and magnitude of stream channel maintenance flows, and previous and recent assessment of sediment transport capacity indicate that substantial adverse effects are unlikely. However, the Fish and Wildlife Mitigation Plan (FEIS Appendix E) includes increasing flushing flows to 600 cfs under certain conditions. See response to Comment No. 37.

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1	United States Department of the Interior FISH AND WILDLIFE SERVICE Ecological Services Colorado Field Office P.O. Box 25486, DFC (65412) Denver, Colorado 80225-0486 OCT 27 2008 IN REPLY REFER TO: ES/CO: T&E/Windy Gap TAILS 65412-2008-FA-0132 Tully 1340 cust 11/12 OCT 24 2008 1000, 1002, 1004, 1300 1005 MEMORANDUM To: Will Tully Environmental Specialist From: Susan C. Linner, Colorado Field Supervisor Subject: Windy Gap Firming Project Draft Environmental Impact Statement This responds to your announcement of August 26, 2008 requesting comments on the Windy Gap DEIS. These comments have been prepared under the provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et. seq.). The Fish and Wildlife Service disagrees with Reclamation's conclusion that the proposed project would have no effect on the Colorado River endangered fishes. Water diversions from the Colorado River basin to the Front Range always adversely affect the Colorado River endangered fishes. The proposed project does fit under the umbrella of the Colorado River Programmatic Biological Opinion, but this does not remove the adverse effect associated with the water depletion, it simply streamlines the consultation process. It doesn't make sense that Reclamation concludes that the proposed project will have no affect on the Colorado River endangered fishes, but then states that they will reinitiate consultation on the proposed action. Reclamation should provide the increased amount of water depletion from the upper Colorado River basin (in average annual acre-feet) from the amount originally consulted on for Windy Gap Reservoir and include this information in their reinitiation request. The project proponent has already signed a recovery agreement. The project proponent will be responsible for payment of a depletion fee of $18.29 per acre-foot (for Fiscal Year 2009). The following comments were made by us on the Preliminary DEIS but were not addressed in the DEIS: Page 1-2 **CANNOT FIND IN DEIS ENV-6.00 245	1. Section 3.13.2.3 of the FEIS was revised to explain the adverse effects to Colorado River endangered fish from WGFP depletions to the Colorado River, and the Municipal Subdistrict's participation in the Recovery Agreement and payment of the depletion fee. Section 7 consultation for the proposed project was completed on February 12, 2010 with issuance of a biological opinion from the Fish and Wildlife Service on the proposed project (FEIS Appendix D).

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2	Page 2 The first full paragraph states **"The WGFP includes additional storage that could only be accomplished through one or more conveyance connections to the C-BT Project. Such connections would require a contract from Reclamation"**. Therefore, the WGFP is interrelated to and interdependent with the C-BT Project. On June 16, 2006, the Service issued a programmatic biological opinion (PBO) for the Platte River Recovery Implementation Program (PRRIP) and water-related activities affecting flow volume and timing in the central and lower reaches of the Platte River in Nebraska. The effects of the continued operation of existing and certain new water-related activities on the remaining species and critical habitats listed in Table II-1 of the PBO were beyond the scope of the PBO and were not considered; Reclamation is currently undergoing separate consultation with the Service for potential impacts of Reclamation's C-BT Project on the remaining species and habitats potentially affected in Colorado. **The current status of this ongoing consultation should be provided in the WGFP BA/DEIS**. For example, in 2007, Reclamation provided the following information for the *Northern Integrated Supply Project* (NISP) to explain the status of their ongoing section 7 consultation with the Service for potential impacts of Reclamation's C-BT Project, which is an associated federal action of NISP, on species and habitats potentially affected in Colorado that were not covered in the PBO:	2. Information on the status of the separate consultation on C-BT facilities was added to Section 3.13.1.4 of the FEIS.
3	"The Eastern Colorado Area Office (ECAO) of Reclamation is currently undergoing separate consultation with the Service for potential impacts of Reclamation's C-BT Project, which includes the continued operation of the existing Horsetooth Reservoir and is an associated federal action of the proposed Project, on the remaining species and habitats potentially affected in Colorado. In 2006, the ECAO contracted to survey all C-BT Project lands below elevation 7,000 feet msl; this was approximately the elevation of the Pole Hill Power Plant west of Loveland. All fee owned lands were evaluated as to whether or not they provided potential habitat for Preble's, Colorado butterfly plant, or Ute ladies'-tresses. All lands associated with the following C-BT features were evaluated: Pole Hill Reservoir and adjacent lands; Pinewood Reservoir and adjacent fee owned lands; Flatiron Reservoir and adjacent fee owned lands; Carter Lake and adjacent fee owned lands; Horsetooth Reservoir and adjacent fee owned lands; Charles Hansen Feeder Canal - all fee owned lands adjacent to the canal between Flatiron Reservoir and Horsetooth Reservoir; and St. Vrain and Boulder Creek Supply Canals - all fee owned lands adjacent to the canals from Carter Lake to Boulder Reservoir. The survey identified 9 areas with potential habitat for one or more of the above listed species. Seven areas were identified as potential habitat for Preble's, two areas for Ute ladies'-tresses, and one site for Colorado butterfly plant. The ECAO is in the process of arranging for surveys of the 9 potential habitats to determine the presence or absence of the species. These surveys will be conducted during the summer of 2007. The ECAO plans on discussing the results of the 2007 surveys with the Service to determine the necessity for additional surveys in 2008". Page 3-33, Table 3-10; Page 3-6 ****CANNOT FIND IN DEIS**	3. See response to Comment No. 2.

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4	Page 3 Please state what estimated accretions (if any) are anticipated for the USGS Kersey gage (06754000; noted on page 43 of WGFP Draft Water Resources Technical Report), given that the PDEIS provided a thorough analysis for the gages upstream of Kersey. Referring to Figure 3-2; Table 3-10 provided accretion estimates for several illlustrated gage locations above the Poudre/South Platte confluence. But **text on page 3-6** ("Streams not expected to see a change in flow are ...") seemed to suggest there will be no net change at Kersey, which is below this confluence. This seems somewhat contradictory or ambiguous, so we suggest that it be clarified.	4. The potential increase in flow at the USGS Kersey gage (06754000) was added to Tables 3-16 and 3-17 in the FEIS. The maximum potential increase in flow at the USGS Kersey gage is the summation of the potential increases in flow anticipated along Big Dry Creek, Coal Creek, St. Vrain Creek, and the Big Thompson River. Consistent with the many comments suggesting that participants should use water imported from the western slope more efficiently, participants intend to reuse their Windy Gap effluent and return flows more fully as their demands grow either through nonpotable reuse, as an exchange supply, as return flow credit, or augmentation water. Therefore, increases in flow at the Kersey gage attributable to Windy Gap water should decrease as Participants more fully reuse their Windy Gap return flows in the future. Sections 3.5.1.1 and 3.5.2.8 of the FEIS were revised to clarify flow changes along the South Platte River.
5	Page 3-193 ****PALLID STURGEON MISSING FROM PAGES 3-191, 3-194, AND 3-195 IN DEIS** The second column, first paragraph states "The interior least tern, piping plover, and whooping crane seasonally use habitat along the Platte River in Nebraska. These species are potentially affected by water depletions in the South Platte River basin. All of the WGFP alternatives import water from the West Slope to the East Slope, which may increase flows in the South Platte River; thus, there would be no **adverse effect** to these species". The pallid sturgeon was omitted and needs to be added here. Also, this contradicts the "no effect" determinations given on Page 3-197, Table 3-106 for the same species, where pallid sturgeon was again omitted.	5. Pallid sturgeon was added to the discussion of other Platte River threatened and endangered species potentially affected by streamflow changes and were included in Tables 3-135 and 3-136 in the FEIS. The rationale on why no impact to Platte River species would occur also was expanded.
6	Page 3-197, Table 3-106 ****MISSING FROM PAGE 3-195 IN DEIS** The table concludes "no effect" for all Colorado River endangered fishes. All water depletions from the Colorado River basin should be a "likely to adversely affect" determination.	6. Table 3-136 was revised to indicate an adverse effect to Colorado River endangered fish.
7	Page 3-198 par. 1. ****MISSING FROM PAGES 3-195 AND 3-196 IN DEIS** Water depletions are not incorporated into the "Recovery Plan". Water depletions are addressed in the Colorado River PBO. If the steps outlined in the Recovery Plan and PBO are followed, it results in a streamlined consultation; but it is still an adverse effect requiring consultation.	7. The FEIS was revised to better describe the Programmatic Biological Opinion and compliance with the Recovery Plan.
8	Criterion 3: new depletions should be identified here and in the project description. Also the new depletion fee for FY2008 is $17.79. cc: Patty Schrader Gelatt Sandy L. Vana-Miller	8. The net annual average depletion to the Colorado River due to the Proposed Action would be 42,066 AF (46,084 AF of Windy Gap pumping minus 4,018 AF of Windy Gap spills). However, C-BT spills and Willow Creek Feeder Canal diversions under the Proposed Action would decrease, which would return 1,970 AF of water back to the Colorado River. Thus, the total Windy Gap average annual depletion to the Colorado River would be 40,096 AF. The Municipal Subdistrict has previously consulted on 18,779 AF of Windy Gap depletions as part of the 1999 Programmatic Biological Opinion. Thus, the **increase** in the average annual depletion to the Colorado River under the Proposed Action is estimated to be 20,317 AF/yr. The Subdistrict would pay a depletion fee based on the 21,317 AF of diversion and the depletion fee rate at the time of payment. Additional discussion on the depletion and payment was added to Section 3.13.2.3 in the FEIS. As mentioned above Section 7 consultation for the proposed project was completed on February 12, 2010 with issuance of a biological opinion from the Fish and Wildlife Service. The depletion fee remains to be paid but will be paid in accordance with the requirements of the Fish and Wildlife Service's February 12, 2010 biological opinion.

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	12-11-2008 4:55PM FROM GRANBY SANITATION 9708879574 P.2 WGFP 1148 Official File Copy ENV 600 CT **GRANBY SANITATION DISTRICT** P.O. Box 560 3493 Grand County Road 57 Granby, CO 80446-0560 Phone (970) 887-2052 Fax (970) 887-9574 OFFICIAL FILE COPY RECLAMATION DEC 1 1 2008 Tully 12/11/08 1075 December 11, 2008 Mr. Will Tully Bureau of Reclamation 11056 W. County Road 18E Loveland, CO 80537-9711 **SENT BY FACSIMILE TO (970)663-3212** RE: Comments to the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) Dear Mr. Tully: These comments are submitted on behalf of Granby Sanitation District (the "District"). The District provides wastewater treatment for the areas in and surrounding the Town of Granby, Colorado. The District's wastewater treatment facility is located on the Fraser River, approximately one mile upstream of the confluence of the Fraser River and the Colorado River. We have several concerns with the proposed Windy Gap Firming Project. While not an all-inclusive listing, the following list of comments/concerns is relevant to the proposed Project:	
1	1. We are the last wastewater treatment facility on the Fraser River, and we are concerned that the impacts to the Colorado River from the Project may affect the standards (both treatment and water temperature standards) required under a discharge permit. Small communities will have extreme difficulty with increased treatment costs potentially caused from the Project's impacts to the Colorado River.	1. The WGFP will not reduce or affect flows in the lower Fraser River. If Rockwell/Mueller Creek Reservoir is constructed, native flows would be bypassed in accordance with State Engineer requirements. Seepage from the dam might slightly increase flows in the lower Fraser River. The WGFP would not impact standards. Standards are set by the Water Quality Control Commission to protect beneficial uses. It is possible that future discharge permits could be affected by nutrient limitation in either the Fraser or Colorado Rivers. This may or may not result in increased treatment costs, depending on the current level of treatment. Proposed water quality mitigation includes reducing nutrient loading to the Three Lakes by funding upgrades to the Fraser WWTP and reducing nonpoint nutrient discharges from agricultural lands, as described in Section 3.8.4 of the FEIS. Upgrades to the Fraser WWTP would provide a year-round improvement in Fraser River water quality including the reach of the river where Granby Sanitation District discharges occur.
2	2. The Project and the DEIS do not sufficiently take into account the water quality impacts of lower flows in the Colorado River and how those impacts may cumulatively affect the aquatic environment (i.e., warmer water and less flushing flows) and the fresh water supply for those individuals below Windy Gap. The Project proponent must mitigate these impacts.	2. Potential impacts to aquatic resources were based on changes in habitat, including water quality parameters such as temperature. As noted in response to Comment No. 1, mitigation in the FEIS includes a reduction in nutrient loadings to the Fraser River, Willow Creek, and Colorado River. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM
3	3. The DEIS does not consider the combined cumulative impacts of both the Windy Gap Firming Project and Denver Water Board's proposed Moffat Tunnel Expansion Project. Since both projects will directly impact the Colorado River system, the combined cumulative impact should be addressed and mitigated in order to receive any required federal permitting. Narrowly reviewing each project separately will result in a more positive, albeit incorrect, conclusion of how the respective projects will affect water quality, water quantity, and the environment in general.	

Com-ment	Letter #1148	Response
	12-11-2008 4:56PM FROM GRANBY SANITATION 9708879574 P. 3 We appreciate the opportunity to comment on the Windy Gap Firming Project. Should you have any questions regarding our comments, please contact our District Administrator at the telephone number provided above. Very Truly Yours, Dave Johnson President	standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict (FEIS Appendix E). See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not. Sediment transport analysis shows that flushing flows would be maintained with the Proposed Action and no impact is expected to aquatic resources from changes in peak flows (FEIS Section 3.9.2.3). Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. Mitigation measures for aquatic resources are discussed in Sections 3.8.4 and 3.9.4 of the FEIS and are included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict with the Colorado Division of Parks Wildlife in accordance with the requirements of CRS 37-60-122.2. 3. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

Com-ment	Letter #400	Response
1	WGFP 400 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Lurline Underbrink Curran MS. CURRAN: My name is Lurline Underbrink Curran, C-u-r-r-a-n. I'm the county manager for Grand County, and I'm also the designated representative for the county under Senate Document 80. The Windy Gap Firming Project is being reviewed in a vacuum. Denver's Moffat Firming Project, coupled with the Windy Gap Firming Project, if approved, we will see almost 80 percent of the water originating above the confluence of the Fraser and Colorado River leaving the county via trans mountain diversion. Grand County has requested several times that these two projects be reviewed together so that the cumulative impact can be studied appropriately. It is impossible to make informed comments on the cumulative impact of these two projects when taken one at a time and when each project impact has been assessed under different modeling projects. For the record, Grand County, under its 1041 regulations, holds local permitting authority over the Windy Gap Firming Project and will exercise those powers. Windy Gap Firming Project utilizes the CBT facilities to transport water to the Front Range. The transportation route takes water from Windy Gap through the pipeline to Granby Reservoir, Shadow Mountain, and finally Grand Lake, the largest natural lake in Colorado.	1. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects. Although the WGFP and Moffat Project used different hydrologic models, the results of both models were compared and differences are minor.
2	The CBT project is governed by federal legislation, referred to as Senate Document 80. Under the governing document, there are several protections given to Grand County, which are referred to as "primary purposes." I won't go into those. Those have been articulated this evening and are of record, and we will make them of record again in our technical comments. In order to accomplish those purposes, the project should be operated by an unprejudiced agency in a fair and efficient manner equitable to all parties having interest therein, and in conformity with particular stipulations. These include: Protection of the irrigation rights near Kremmling; preservation of a live stream in that section of the Colorado River between the new reservoir, which would have been Granby, and the mouth	2. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

Com-ment	Letter #400	Response
2	of the Fraser River; and to ensure an adequate supply for irrigation, sanitary purposes, and the preservation of scenic attractions and fish life. The current water quality issues in Grand Lake are not in compliance with Senate Document 80. The clarity of Grand Lake, algae issues -- which, in 2007, reached toxic levels -- and the transportation of nutrients are all associated with pumping of water from both the CBT project as well as the Windy Gap. There are ongoing studies to determine the specific causes of these problems, but those studies are not yet complete. However, the EIS has stated several impacts from nutrients which have been described here this evening, chlorophyll-A, dissolved oxygen, all things that increase the degradation of Grand Lake. Temperature and dissolved oxygen will continue to exceed state standards in Granby Reservoir, and magnesium will increase in the overall entire Three Lakes area -- Three Lakes system due to this lower dissolved oxygen. All of these nutrient issues are thought to contribute to clarity, algae, weed and temperature issues.	3. Reclamation and the Northern District are currently evaluating how modifications in the operation of the C-BT Project could improve water quality in Grand Lake. These ongoing efforts, plus water quality studies of C-BT Project operations, will continue to evaluate opportunities to improve the Three Lakes' water quality. Section 3.8.4 of the FEIS includes a detailed discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would fully mitigate expected nutrient increases in the Three Lakes system as a result of additional pumping from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.
3	Prepositioning, which is the linchpin of the Windy Gap Firming Project, would allow more pumping of water to the CBT system, which will only exacerbate the present water quality issues. While Grand County is working closely with the Bureau of Reclamation to formulate a plan to protect Grand Lake and reestablish this condition, this plan has not been formulated, agreed upon and implemented. While there has been much cooperation in the last couple of years with Northern and other participants, these have to be formulated and put into place before this project can go forward.	
4	The water quality below Windy Gap also must be addressed, and the DEIS has to address these issues. I see my time is up, but I'm not going to stop.	4. See response to Comment No. 3 on nutrient mitigation that would also benefit Colorado River water quality year-round. Other mitigation measures would be implemented to avoid or minimize adverse water quality effects of the WGFP. These measures will be implemented prior to delivery of water.
5	The hand of the corporation has been extended from the project proponents, which is encouraging. There are several proposals under review that could help address these issues discussed, one of which is the Grand County Stream Management Plan, which could ensure water is available for environmental, domestic, agricultural, and recreation purposes. The Bureau of Reclamation, in its position as a lead agency for the Windy Gap Firming Project, as	5. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the Stream

Com-ment	Letter #400	Response
5	well as the unprejudiced agency under Senate Document 80, has an obligation to protect Grand County and the citizens of the state from the impacts from the Windy Gap Firming Project that cannot fully be assessed until past environmental and operating problems have been resolved and a full understanding of the cumulative impact of both firming projects have been presented. Grand County is asking for the additional time to assess these impacts. This document is large, and we ask that we be given time to assess it properly. Thank you for the additional time.	SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS is to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS may help meet some of the goals of the SMP. See response to Comment No. 1 regarding cumulative effects and Comment No. 2 regarding Senate Document 80.

Comment	Letter #1073	Response

WGFP 1073

Grand County Water & Sanitation District #1

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Mr. Will Tully
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Eastern Colorado Area Office
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Mr. Chandler J. Peter
U.S. Army Corps of Engineers
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9307 South Wadsworth Blvd.
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RE: Windy Gap Firming Project

Dear Mr. Tully and Mr. Peter,

The following letter is submitted on behalf of Grand County Water and Sanitation District #1. Grand County Water and Sanitation District (the District) is located near the top of the Fraser River Valley and provides water and sanitary sewer service to the majority of the Town of Winter Park and some of the surrounding area.

The District's water supplies are located on Vasquez and Little Vasquez Creeks, tributaries to the Fraser River. Directly above the District water supplies are diversion belonging to the Denver Water Department. The District's wastewater discharges to the Fraser River above Windy Gap.

1 The District has been made aware of the Environmental Impact Statement that is being prepared for the Denver Water Department's Moffat Collection System project. Because of the close proximity and the effects that they may have, the District feels that the Windy Gap and Moffat projects should be reviewed together and the cumulative impacts considered.

2 Grand County Water and Sanitation District owns Windy Gap water through Middle Park Water Conservancy District. The District needs this water for existing customers and future development. Without Middle Park's 3,000 acre feet of water being firmed up and available in a reliable manner, the District's ability to continue to divert water may be in jeopardy.

3 Removal of water from the headwaters of the western slope and the overall impact on water quantity and quality along the Fraser River and Colorado River Basins needs to be addressed within this process. Continued degradation of the water quality is affecting the ability of municipal wastewater treatment plants to meet discharge permits without huge expenditures of monies on up-grades to these treatment systems. Lower water quality and quantity also has

1. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

Com-ment	Letter #1073	Response
3	impacts on municipalities in the cost for providing drinking water treatment. Additional expenses caused from trans-mountain diversion will place undue hardships on headwater municipalities. Grand County Water and Sanitation District #1 appreciates the opportunity to submit these comments. If you have any questions please feel free to contact me. Thank You, Bruce Hutchins Manager	2. One of the purposes of the WGFP is to, "…provide up to 3,000 AF of storage to firm water deliveries for the Middle Park Water Conservancy District." There are ongoing discussions between Middle Park and the Subdistrict on how best to use this 3,000 acre-feet of storage. 3. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.

Com-ment	Letter #411	Response
1 2	WGFP 411 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 Gina Hardin MS. HARDIN: So I am Gina Hardin, an attorney in Denver, and I've been asked to present these comments on behalf of Grand County and Northwest Council of Governments who are unable to attend tonight. They will provide more detailed comments on Thursday night as well as written comments. First, Grand County and Northwest Colorado are concerned that the description of the existing conditions in the DEIS does not adequately explain the degree to which existing water diversion projects already have affected the upper Colorado River. Estimates vary, but as much as 65 percent of the water is currently diverted from the upper Colorado River each year. These existing diversions have reduced stream flows, causing a great deal of environmental and socio-economic impact, such as reductions in water quality. Impacts to agriculture irrigators. Impacts to water. And waste water treatment plants. And lots of boating opportunities. Recreation and tourism are the backbone of Grand County's economy, and water is the backbone of recreation and tourism. Every single drop matters. In some sections of the stream, the difference of 1 or 2 cubic feet per second can be critical. It is not possible to understand the impact of the WGFP unless we understand the condition. The Federal agencies charged with permitting this project need that information to make an informed decision. Second, the mitigation proposed in the DEIS is not specific. Grand County and Northwest Council of Governments have been working on a stream management plan that will identify the streams -- the flow patterns and stream improvements that are needed to protect the health of the river system. Recently, both municipal subdistrict and the Denver Water Board have agreed to participate in phase 3 of the plan. Mitigation imposed in the -- in the Windy Gap Firming Project should follow the findings and recommendations of the stream management plan to ensure that no more harm is done to the upper Colorado River. One area of the state should not grow at the expense of another. The stream management plan is a way to ensure that this does not happen. Third, Grand County has been asked by many, many constituents, to seek an extension of time to respond in detail to the DEIS. This document is very complicated and requires hours and hours of study to understand. We have requested an additional 45 days from the October 28th deadline. Others have asked for more. Please give this request your serious consideration. The project is far too important and complex for the public to limit the time for public comment. And finally, we are hopeful that Grand County and other West Slope interests will be able to find a way that the East Slope can get the water it needs without harming the West Slope. The Bureau of Reclamation's decision documents should form a basis for this outcome. Northwest Council of Governments and Grand County will provide various detailed comments in writing. Thank you.	1. The Affected Environment section of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Other sections in the EIS provide discussions of existing condition and status of the various resources. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make a reasonable comparison of the impacts of each of the alternatives. The same is true for other resources. The cumulative effects assessment in the EIS for hydrology and other resources considers the impacts of all past, present, and reasonably foreseeable actions in combination with the alternatives. 2. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS may help meet some of the goals of the SMP. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS.

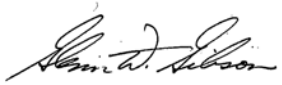
Com-ment	Letter #392	Response
1	WGFP 392 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Pat Raney MS. RANEY: Good evening. My name is Pat Raney, R-a-n-e-y. I live in Grand Lake, and I'm a member of the Grand Lake Shoreline Association. I've been in Grand Lake since 1996. And since that time, I have been doing volunteer water sampling every week in the summer for the last 12 years. And since I have lived in Grand Lake, the water quality has been degrading. I think it's important to understand that Grand Lake is Colorado's largest natural lake. It is not a reservoir. It should not be treated as a reservoir. And it should not be part of a study where sometimes it's even referred to as Grand Lake Reservoir. That is incorrect, and it is a very unfortunate mistake on the part of the researchers. The environmental impact study is to investigate the impact of this project. Every impact on Grand Lake is negative. There is not one good reason that this project should be approved. The water -- the impact includes increase in phosphorus, increase in nitrogen, increase in chlorophyll A, according to your own study. It also shows a decrease in depth reading. That means a decrease in the clarity of Colorado's largest natural lake. This is completely unacceptable, to have an EIS with negative impacts and not consider those very, very carefully. Colorado's largest natural lake should not be degraded by this project. We need to protect the lake. We need absolutely more conservation on the Front Range. You have already heard that. Colorado -- Grand Lake, as Colorado's largest natural lake, is the most important resource in the state, except for the Colorado River itself. And the negative impacts of this project should be seriously considered and the project not continue until you have mitigated all of these potential impacts. Thank you.	1. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, would reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP would not exacerbate the algae and clarity problem in Shadow Mountain Reservoir and Grand Lake. These measures would improve the quality of Fraser River, Willow Creek, and the Colorado River water downstream of these improvements. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation will require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS.

Com-ment	Letter #419	Response
1	WGFP 419 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 John Monson MR. MONSON: Good evening. My name is John Monson. I'm the Water and Sewer Director for the City of Greeley. We celebrated in Greeley Water our hundredth anniversary last year. I got to ride on the float in the Greeley Stampede parade for the first time ever, and by the way, one of the first water ordinances that Greeley passed a hundred years ago was for even-odd irrigation. We've had water conservation in Greeley for over a hundred years now. The Windy Gap Firming Project, of which we're a participant, is part of our next hundred years in Greeley. And I'd like to talk to you a little bit about why this Windy Gap Firming Project is important to us and it is really well described in our 2003 Water Master Plan. We -- in that master plan, started talking about the near term method to meet our demands and the long term. In the near term, there are probably about four major parts to that. One was to use gravel pits. Another was to provide a lot of nonpotable water. Conservation was a third issue. And maximizing existing supplies was our fourth component of that master plan. The existing supplies, I say, because Greeley is one of the original six cities that founded the Windy Gap project, and we still have one of the largest blocks of water in that project. After implementation or -- while implementing that master plan, we are now using lined gravel pits for storage. We have an extensive ditch system going through the city. About 20 percent of all of our irrigation in the city is done with nonpotable water these days. And conservation. The City of Greeley's budget for water conservation is about a half a million dollars a year now. We've got four full-time employees and lots and lots of seasonal people. We do all the usual things, rebates for toilets and front-load washers. We also do audits of residential irrigation systems, commercial developments. I even hired a contractor to go into the Swift meat packing plant and look for everything that leaked in that plant. They use an enormous amount of water and we thought we'd get the biggest bang for the buck by looking at conservation in their system. We also do things like grants for lower water use	1. Thank you for your comment.

Com-ment	Letter #419	Response
1	landscape. Elaine Lai of the USEPA, a couple of years ago, looked at water conservation methods up and down the Front Range and came up with a list of about 50 that are in general use. Greeley has adopted over 80 percent of these water conservation programs that were in that list. One of the best water conservation methods we've come up with is universal metering and a rate structure that encourages water conservation. We have been fully metered since 1996. And at that time, we moved from a flat rate to a uniform rate. The more water you use, the more you pay for. That has shown a dramatic water conservation of about 20 percent less demand than premetering days. So water conservation is a third aspect. The fourth is to maximize the existing supplies we've got. Windy Gap, it is one of those supplies. And we urge you to approve this project as one of the components of our master plan for securing water supply for Greeley's future. Thank you.	

Com-ment	Letter #46	Response
1	LARIMER COUNTY COMMITTED TO EXCELLENCE BOARD OF COUNTY COMMISSIONERS 200 W. Oak Street Post Office Box 1190 Fort Collins, Colorado 80522-1190 (970) 498-7010 Fax (970) 498-7006 E-mail: bocc@larimer.org Mr. Chandler J Peter U.S. Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd Littleton CO 80128-6901 **Regarding: Windy Gap Firming Project Draft Environmental Impact Statement** Dear Mr. Peter: The Larimer County Board of Commissioners has reviewed the draft Environmental Impact Statement (EIS) for the Windy Gap Firming Project, and offers the following comments. The preferred alternative analyzed in the draft EIS is the Chimney Hollow Reservoir, located just west of Carter Lake Reservoir in Larimer County. The purpose of the reservoir would be to store Windy Gap water originating on the west slope. Chimney Hollow would allow storage of 90,000 acre-feet, and is similar in size to Carter Lake Reservoir. Water would be delivered through the existing facilities of the Colorado Big Thompson Project. Larimer County worked cooperatively with the Municipal Subdistrict of the Northern Colorado Water Conservancy District, and adopted an agreement for joint purchase of property in 2005. The purpose was to coordinate on the County's Blue Mountain Open Space Project and the District's firming project. The EIS appears to be consistent with the June 2004 Intergovernmental Agreement between the County and the Conservancy District and with the discussions held prior to acquisition of the property. The alternatives involving Chimney Hollow Reservoir accurately depict our agreements regarding temporary and permanent access, relocation of the power line, and the use and management of the District property and reservoir. Not withstanding the above, we do have concerns about how the operation of the Windy Gap Firming Project will result in lower water levels in Horsetooth Reservoir. The projected lower water levels will likely take the County's Inlet Bay Marina and primary boat ramps out of operation weeks earlier than current operations. The result will be a loss in recreational opportunities and decreased revenues for Larimer County which manages recreation at the reservoir. The proponents should further examine this issue and provide for appropriate avoidance or mitigation. It is our view that the construction of Chimney Hollow Reservoir as a component of Alternatives 2, 3 or 4 is preferable to Dry Creek Reservoir in Alternative 5. The reason for this view relate to the ability to provide shorter pipelines and access roads, reduced wetland impacts, reduced PRINTED ON RECYCLED PAPER	1. In average years, the Proposed Action would reduce surface water elevations to the bottom of the South Bay-South boat ramp in September. While the potential loss of use of this boat ramp would reduce the number of accessible boat ramps from five to four, it is not anticipated to adversely affect overall boating opportunities. During dry years, impacts to the South Bay-South boat ramp are the same under the Proposed Action and Existing Conditions. In addition, the Santaka Cove boat ramp could be impacted by the Proposed Action, which would impact overall boating opportunities and carrying capacity, particularly at the northern end of the reservoir. Modified prepositioning efforts would eliminate boat ramp impacts from the Proposed Action during average years during the summer recreation season. In dry years, the impacts would remain and would be similar to existing conditions. Section 3.19.4 of the Recreation section has been modified in the FEIS to describe the benefits of modified prepositioning efforts on boating access at Horsetooth Reservoir.

Com-ment	Letter #46	Response
	Mr. Chandler J Peter October 21, 2008 Page 2 construction noise, and reduced impacts to private property and existing homes with the Chimney Hollow option. The use of Jasper East or Rockwell reservoirs on the west slope in conjunction with Chimney Hollow Reservoir in Alternatives 3 and 4 does have the potential to mitigate some of the water quantity and quality impacts estimated for Carter Lake and Horsetooth reservoirs. We did note, however, that there are significant wetland losses associated with each of the potential west slope reservoirs. While we are interested in reasonable ways to protect water quantity and quality in the Carter Lake and Horsetooth reservoirs, we concur that the impacts to west slope wetlands is sufficient to justify the preferred alternative over those projects.	
2	The preferred alternative would require the relocation of about 3.8 miles of electric transmission line that runs through the Chimney Hollow site. Larimer County has recently adopted regulations for power lines under what is known in State statutes as 1041 Powers. Those regulations will require a formal review and permitting process for the transmission line relocation.	2. The Western Area Power Administration (Western) would be responsible for relocation of a portion of the existing transmission line that crosses through the Chimney Hollow Reservoir site. Western would comply with the substantive requirements of a county permit.
3	As part of the preliminary planning process for the Windy Gap Firming Project, the Conservancy District worked with County staff regarding options for the power line route. A considerable amount of supporting information about potential route alternatives was prepared as part of that process. It would be helpful for completing the public record for the EIS if those results were referenced and described in the final EIS.	3. Additional description on the visual simulation and other measures used to minimize the impact of the relocated transmission line were added to Section 3.21.2.4 of the FEIS.
4	The draft EIS indicates that the south access road to the "saddle dam" would be closed to the public. The County would like to engage the Conservancy District in discussions about the possibility of a trail to allow non-motorized public access to the south end of the reservoir.	4. The Subdistrict would work with Larimer County in the development of a recreation plan for Chimney Hollow Reservoir to determine if a nonmotorized access point at the south end would be feasible.
5	Table 3-111 and the discussion concerning transportation impacts makes reference to existing traffic volumes and capacities of the County roadways that may serve as access and haul routes to the reservoir sites for either Chimney Hollow or Dry Creek. These "capacities" are theoretical values based on road geometry. They do not consider the structural capacity of the existing road system to handle heavy and sustained construction traffic. The EIS needs to more thoroughly determine the adequacy of and potential impacts to the County road system resulting from the construction activities and define appropriate mitigation measures and costs. This assessment should look at road conditions now and consider the potential for direct damage to the road system and reductions in remaining service life to the roadways resulting from the heavy and sustained construction traffic.	5. The Subdistrict will be required to acquire necessary County permits for construction. It is anticipated that these permits will address potential impacts to the County road system as a result of construction activities.
6	It is anticipated that construction phase of Chimney Hollow Reservoir would impact access to the developed recreation facilities at Flatiron Reservoir and the south end of Carter Lake Reservoir. We would request that the draft EIS address the impact of these disruptions and consider potential mitigation strategies.	6. No impact on access to Flatiron Reservoir is anticipated at this time. A construction access road to the Chimney Hollow dam site would be built west of Flatiron Reservoir access. Additional construction traffic along County Road 28 could inconvenience visitors to Flatiron Reservoir. If a potential impact to recreation access at Flatiron Reservoir is identified during construction planning, appropriate mitigation measures to minimize impacts on use of Flatiron Reservoir would be developed.

Com-ment	Letter #46	Response
7	Mr. Chandler J Peter October 21, 2008 Page 3 The participants should be required to develop and implement reasonable conservation measures for Windy Gap Firming deliveries in order to account for the value and importance of the water supply project. Incorporating effective conservation practices can lower the per capita demand and enhance the efficiency and sustainability of the project. Water conservation measures can help to assure that adequate clean water supplies remain available and reliable in the course of growing populations, periodic drought, and climate change. The Board appreciates the opportunity to comment on the draft EIS. We are available to further discuss any of these issues if that would assist in the preparation of the final EIS. Sincerely, FOR THE BOARD OF COUNTY COMMISSIONERS  Glenn Gibson Chair	7. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation will require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Com-ment	Letter #91	Response
1	DEPARTMENT OF WATER AND POWER City of Loveland 200 North Wilson Avenue • Loveland, CO 80537 (970) 962-3000 • Fax (970) 962-3400 • TDD (970) 962-2620 www.cityofloveland.org ENV-6.00 245 OCT 28 2008 Tully 1340 cwt October 24, 2008 Mr. Will Tully US Bureau of Reclamation 11056 West County Road 18E Loveland, CO 80537 Mr. Chandler J. Peter US Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128 RE: City of Loveland Participation and Support of the Windy Gap Firming Project U.S. Bureau of Reclamation DEIS 08-30 and U.S. Army Corps of Engineers Section 404 Permit Application No. 200380523 Dear Will and Chandler: I am writing as the Chair of the Loveland Utilities Commission. The Commission consists of nine Loveland citizens who consider issues and make recommendations to the Loveland City Council on topics of water and power. We wish to convey to you our strong support of the proposal to construct storage to firm up waters from the Windy Gap Project in Chimney Hollow Reservoir. Few feasible alternatives exist, and future costs and impacts will almost surely increase if this project is not approved and built. Although I presented briefly at the public hearing on October 7, 2008, enclosed are more extensive comments that were endorsed by official action of the Commission on October 15, 2008. *Project Need:* The City of Loveland strives to create and maintain a diverse portfolio of raw water rights including water from four basic sources: native rights of the Big Thompson River from early decrees and from transferred ditch shares, units in the Colorado-Big Thompson Project, and units in the Windy Gap Project. A dependable supply of water from the Windy Gap Firming Project is critical to achieving and maintaining this diversity. The Project is essential to meeting the demands of additional growth, and to protect our citizens with an adequate water supply during a drought period. Essential components of Loveland's mission for its Water Utility, among others, are the following: to provide high quality service and reliability; to plan for the future while being environmentally sensitive; and to offer the citizens competitive rates and fiscal responsibility. It remains an important community value that the City strives to provide high quality water at a cost everyone can afford while being environmentally responsible. In order to determine how to make the best use of its water in a responsible and efficient manner, the City completed a Raw Water Master Plan study in late 2005. The City's recently enlarged reservoir, Green Ridge Glade, was completed and brought online in 2004. This storage greatly improves the City's ability to manage raw water rights that it owns in the Big Thompson River, making the water available during the non-irrigation season and during times of drought, firming and maximizing its use of the in-basin raw water resource within legal constraints. Windy Gap Project water requires its own storage to be made reliable for the City as its native supplies have been. Storing Windy Gap water in Colorado-Big Thompson Project reservoirs involves an inherent, and very real, risk for spilling and losing the water. During above average water years when Printed on Recycled Paper	1. Thank you for your comment.

Com-ment	Letter #91	Response
1	the CBT system fills, stored Windy Gap water is the first to spill from storage and is lost. A regional firming project, such as is proposed at Chimney Hollow in the Draft Environmental Impact Statement (DEIS), will allow the Windy Gap water to be made firm so that it is available during drought or whenever it is needed by its owners. *Conservation:* Loveland implemented conservation measures almost from the founding of its water utility in 1887. Records show watering restrictions were implemented by 1893. One of the most effective water conservation measures was its City-initiated, utility-wide metering program in 1979. Water service meters were installed on all services by 1981, years earlier than most other municipalities in the state, and the City moved from a flat monthly billing rate to a uniform rate per thousand gallons. This resulted in a permanent 20% reduction in consumption and 25% reduction in maximum day use on a per capita basis. The City of Loveland's per capita water use remains low. Customers demonstrated their commitment to conserving water by reducing residential *gallons per capita day (gpcd)* consumption by 16% between 2000 and 2006. The City's residential *gpcd* value in 2006 was actually lower than comparable values for Aurora, Boulder and Denver Water, according to staff analysis and information from other entities. Loveland prefers an effective educational approach for implementing and requesting conservation measures over imposing an increasing block rate structure as some interests around the state have proposed. Education was and remains a key component of the City's water conservation measures. Loveland widely promotes the importance of water conservation with information to its customers to enhance efficient water use patterns. This is done on a regular basis, primarily with inserts in utility bills, broadcasts through the local community access cable channel, the City's website, and the local newspaper. The City also participates with community outreach efforts such as speaking to various civic groups, making presentations at local schools, participating in Loveland's annual Children's Water Festival, and educating teachers through Project WET (Water Education for Teachers). Loveland encourages developers to plant low-water use plants and has recently created a voluntary Xeriscape program. The incentives include a reduced water rights requirement and reduced system impact fees. To participate in the program, a landscape plan with hydrozones and estimated water requirements must be submitted for approval. The landscape must reduce water use by twenty five percent or more to qualify for the incentives. Another successful outreach has been the City's "Garden in a Box" program. This is a convenient, non-intimidating way for customers to purchase xeric plants complete with a landscape plan of where to place the plants for visual effectiveness. Customers can choose from one of three options for the "Garden in a Box", pay online, and pick up the plants at the Water utility office. The pick-up is timed early in the spring so customers have ample time to plant prior to the heat of the summer. The City has two dedicated xeriscape demonstration gardens, one located at City Hall and another located at the Loveland Water & Power office. Public parks have areas of xeric plantings. The public parks and right-of-way areas are examined to determine the most appropriate type of planting or surface, with an eye toward conserving water. Awareness of the value of proper soil amendment has been heightened. Soil amendment requirements, as well as a plant list of desired xeric plants, are now an important part of the City's site development performance standards and guidelines. *Mitigation:* At the public hearing on October 7, 2008, some comments were directed to the need for Project participants to mitigate effects of the project by doing something for the Western Slope. In response, please allow me to reiterate the following known facts:	

Com-ment	Letter #91	Response
1	• The Municipal Subdistrict legally holds ownership of the water rights and is "playing by the rules" within Colorado's prior appropriation system. • In the 1980's the Municipal Subdistrict paid $11.5 million in compensatory mitigation to develop West Slope water storage, to fund diversion and water quality improvements, and to support endangered species recovery. Of that amount, payment of $10.2 million went to the Colorado River Water Conservation District and was used to help construct Wolford Mountain Reservoir. • Other non-monetary compensation included minimum streamflow commitments on the Colorado River and 3,000 acre-feet of water made available from the Windy Gap Project each year pumping occurs, available to the Middle Park Water Conservancy District. • Outstanding mitigation considerations remain for the impacts caused by actual reservoir construction. The impacts of the dam and reservoir footprint on the selected site should appropriately be considered. Significant West Slope mitigation has been provided in anticipation of the Project. *Importance:* What happens if a Windy Gap Firming Project is not approved and built? Alternatives are discussed in the DEIS, but the specific implications for Loveland are serious: • The City's future firm yield would be reduced by over 2,500 acre-feet. Meeting the demands of additional growth, and to protect our citizens with an adequate water supply during a drought period would still have to be accomplished. • Loveland would search for individual storage to make firm the Windy Gap water it already owns. However, a search is currently underway by the City for a site to store native waters from the Big Thompson River, and few feasible alternatives exist. Future costs would be driven up dramatically. • Loveland would necessarily consider the use of water from other sources, which could include additional water from the CBT system, additional transfers of water from surrounding agricultural uses, and additional individual storage capacity for native water. Such storage would be required to make agricultural supplies available to meet year around demands and during drought. We heartily encourage those weighing this permit proposal to allow the Windy Gap Firming Project to move forward as proposed. We believe the Chimney Hollow alternative represents a reasonable, environmentally responsible, and economically feasible solution that works well for all parties. A storage project for Windy Gap Project water has been anticipated for many years, and the proposed project is best for the future well-being not only of Loveland, but of the Northern Colorado Region and our State. Thank you for your consideration. Sincerely, Gary L. Hausman Chairman, Loveland Utilities Commission cc: Ralph Mullinix, Director, Loveland Water & Power Erick Wilkinson, General Manager, Municipal Subdistrict/NCWCD	

Com-ment	Letter #412	Response
1	WGFP 412 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 Gary Hausman MR. HAUSMAN: My name is Gary Hausman, and I'm the Chairman of the Loveland Utility Commission. The Commission consists of nine Loveland citizens that make recommendations to the Loveland City Council on topics of water and power. We strongly support the proposal to approve the construction of the Chimney Hollow reservoir. Few feasible alternatives exist and the future costs and impacts will almost surely increase if the project is not approved and built. The City of Loveland is striving to have a diverse portfolio of raw water routes, including native rights on the Big Thompson River from early decrees and transfer ditch shares; units in the Colorado Big Thompson project; and units in the Windy Gap project. The Windy Gap project, Firming Project, is critical to achieving and maintaining this diversity. The project is essential to meeting the demands of additional growth and to protect our citizens with an adequate water supply during a drought period. Loveland participating level of 7,000 acre-feet of storage would occupy 7.7 percent of the proposed Chimney Hollow reservoir. Essential components of the Loveland emission for its water utility are to provide high-quality service and reliability, to plan the future while being environmentally sensitive, and to offer citizens a competitive rate and fiscal responsibility. It is the important community value that the City strives to provide high-quality water at a cost that everyone can afford while being environmentally responsible. Loveland uses the educational approach to implement and to request conservation measures, and the citizens demonstrated their commitment by reducing residential gallon per capita day, GPCD, consumption by 16 percent between 2000 and 2006. The city's residential GPCD value in 2006 was actually lower than the compared values of Aurora, Boulder, Denver water, according to the staff analysis and information from other entities. The City actually participates in community outreach efforts, such as making presentations at various civic groups and schools, participating in the annual children's water festival, and educating teachers through the project water -- or WET, Water Education for Teachers program, sponsored by the Colorado Watershed Network. Loveland encourages participation in a voluntary xeriscape program that includes fiscal incentives for developers and a garden in the box program providing reduced price planting and instructions for customers. We wholeheartedly encourage those considering this permit proposal to allow the Windy Gap Firming Project to move forward as proposed. We believe that it's a reasonable, environmentally responsible solution that is best for the future and well-being, not only of Loveland but the Northern Colorado region and our state. Thank you.	1. Thank you for your comment.

Com-ment	Letter #1149	Response
	WGFP 1149 Middle Park Conservation District PO Box 265 Kremmling, CO 80459 Will Trully US Bureau of Reclamation 11056 W. CR 18E Loveland, CO 80537 December 29, 2008 Dear Mr. Will Trully: The Middle Park Conservation District works to conserve soil, water, and other natural resources on public and private land in Grand and Summit Counties. The Draft Environmental Impact Statement (DEIS) for the Windy Gap Firming Project predicts that increased water diversions and reduced flows could alter water quality, decrease the availability critical riparian habitat for aquatic and terrestrial wildlife, temporarily and permanently affect aquatic vegetation and wetlands, and have negative socioeconomic implications for local economies along the upper Colorado River. For these reasons, the Middle Park Conservation District DOES NOT endorse the Windy Gap Firming Project (WGFP).	
1	We believe the WGFP is more of a detriment to our community than a benefit. As stewards of the land, it is our job to project the wise use of our natural resources. The WGFP could potentially destroy the integrity of many ecosystem services we gain from the land and water of the upper Colorado River ecosystem. Though the DEIS discusses, in detail, the impacts of the WGFP on habitat and land use on the Front Range, it only briefly discusses the repercussions felt on the Western Slope. Reduced water flows could dry up many wetlands in the area, thus reducing the capacity of the land to recycle nutrients, provide habitat for migratory birds and other wildlife, neutralize toxins, store water, and prevent	1. The DEIS provided an analysis of the environmental effects to a wide range of resources for the proposed WGFP in accordance National Environmental Policy and Council of Environmental Quality Guidelines. We appreciate your concern about the project. The FEIS includes additional information to clarify potential impacts and mitigation measures to reduce those impacts.
2	erosion along river banks. Additionally, many ranchers rely on peak summer flows to irrigate their hay fields; reduced flows could decrease crop production and hinder the ranching industry in Middle Park.	2. The Subdistrict would comply with state water law. Windy Gap cannot divert when downstream senior water rights are calling for water and the Windy Gap project is not in priority. The Windy Gap Project would divert water from the Colorado River in accordance with the Municipal Subdistrict's water rights. These rights are administered by the Colorado State Engineers Office. Windy Gap water rights are junior to most downstream irrigation rights, and Windy Gap diversions would only occur when those rights are in priority. After the WGFP is in place, the Windy Gap Project would continue to comply with Colorado River bypass flow requirements established by the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir, 135 cfs below the Williams Fork, or 150 cfs below Troublesome Creek. The Windy Gap Project cannot divert if the agreed minimum flows are not met, even if Windy Gap water rights are in priority. Colorado River flows may fall below the minimum streamflow volumes when the Windy Gap Project is not pumping, particularly in late summer. The Subdistrict has no control over Colorado River flow when the Windy Gap Project is not pumping.
3	The DEIS states that the WGFP will "only supply 10% of the projected 2050 East Slope Participant water supply demands", leaving 34% of water demands yet to be accounted for. The Middle Park Conservation District would like to see communities along the Colorado Front Range take a more proactive stance in conserving their water resources. If after implementing all possible conservation practices water demands are not being met, then, and only then, may we look to other alternatives, such as the WGFP, to supply the water needs of the Colorado Front Range and Northern Colorado Water Conservancy District. Sincerely, *Board of Supervisors* Middle Park Conservation District	3. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Com-ment	Letter #1096	Response

MIDDLE PARK WATER CONSERVANCY DISTRICT
POST OFFICE BOX 145
GRANBY, COLORADO 80446

December 22, 2008

Mr. Will Tully
Bureau of Reclamation, Eastern Colorado Area Office
11056 W. County Road 18 E
Loveland, CO 80537-9711

RE: Windy Gap Firming Project, Draft Environmental Impact Statement, Comments of Middle Park Water Conservancy District

Dear Mr. Tully:

The purpose of this correspondence is to comment on the Windy Gap draft EIS for the Middle Park Water Conservancy District. As noted many times throughout the draft EIS, Middle Park Water Conservancy District by virtue of contractual arrangements has an interest in 3,000 acre foot under the Windy Gap Agreement. As of the time of writing this correspondence, Middle Park Water Conservancy District has not executed an agreement with the participants regarding its participation in the Windy Gap Firming Project. However, negotiations have been occurring over the last several years involving Middle Park's participation in this project and Middle Park is hopeful that they will conclude successfully.

Our engineers have been reviewing the Hydrology Impact as summarized in the draft EIS and have concluded that based upon the no action alternative versus the proposed action alternative the following hydrological impacts will occur:

- Increased diversions and reduced flows in the Colorado River below Windy Gap Reservoir in some (wetter) years
- Average Windy Gap diversions would increase about 2,500 ac-ft/year
- Colorado River average annual flow below Lake Granby would decrease about 5,000 ac-ft/yr as a result of the availability of additional Windy Gap storage and fewer reservoir spills

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	Mr. Will Tully December 18, 2008 Page 2 • Colorado River average annual flow below the Windy Gap diversion would decrease by about 9,000 ac-ft/yr, mostly occurring between May and August, in average and wet years (no changes in flow in dry years) • Colorado River average annual streamflow would be reduced about 9,000 ac-ft/yr below Kremmling and the confluence with the Blue River • Average annual Willow Creek streamflow below Willow Creek Reservoir would decrease about 1,200 ac-ft/yr due to changes in Willow Creek Feeder Canal deliveries to Lake Granby • Lake Granby average monthly water levels would decrease from historic conditions about 5 to 8 feet, and could decline as much as 23 feet during a series of dry years. • Windy Gap firm yield (to all participants) would increase from about 1,200 ac-ft/yr to about 26,600 ac-ft/yr • The average annual deliveries of Windy Gap water thru the Adams Tunnel to the east slope would increase from about 22,000 ac-ft/yr to about 31,000 ac-ft/yr.	
1	Middle Park's first comment is that references to Middle Park's water interest is slightly different than stated in the draft EIS. The actual clause regarding the use of Middle Park's water states as follows: "Subdistrict will release this 3,000 acre feet of water for all beneficial uses, except for instream uses and industrial uses (unless the industrial use is with a municipality and through its municipal system)." The exception on the industrial uses probably should be included in those references.	1. Section 1.2 of the FEIS was revised to indicate MPWCD water can be used for industrial uses in a municipality and through a municipal system.
	Issues that Middle Park feels that are not fully analyzed and/or addressed include:	
2	1. Pre-positioning. It seems to Middle Park that that issue needs to be fully addressed since it is vital to this particular project.	2. The hydrologic and resource effects of prepositioning as a component of Alternative 2 were evaluated in the EIS. It is not clear from the comment what additional analysis is recommended. Also mitigation includes modification of prepositioning to minimize the adverse effects on water levels in Granby Reservoir under the Proposed Action. These are discussed in Section 3.5.4 of the FEIS.
3	2. The draft EIS does not include the most recent drought under the study conditions which could impact the water available for Windy Gap diversions.	3. The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (flow, diversion, evaporation, and precipitation) was readily available through that year, and the State's CDSS model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic

Com-ment	Letter #1096	Response
		changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002 and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available, as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years.

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	Mr. Will Tully December 18, 2008 Page 3	The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years.
4	3. The model used may have some flaws that may understate impacts and overstate water availability and needs to be carefully reviewed.	4. It was assumed that the comment is referring to the level of Windy Gap diversions under the existing conditions model scenario.
5	4. There may be a need to modify Lake Granby Outlet works under the proposed alternative.	Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the Project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment.
6	5. Overall impacts on Lake Granby water levels needs to be carefully examined in light of reductions that may occur because of the mandatory inter-relationship between CBT storage and Lake Granby and Chimney Hollow Reservoir that would result in lower lake levels. As an adjunct to this, it is possible that allowing West Slope storage in Granby Reservoir could actually raise levels in Lake Granby and mitigate adverse impacts on recreation that could occur.	
7	6. It is assumed that Ralph Price Reservoir would be constructed however there is no basis in the draft EIS adequate to form that conclusion.	
8	7. The draft EIS assumes that Shoshone subordination by Denver will in fact occur when it may not actually be operated and certainly not with the proposed West Slope benefits. There is no requirement that the Agreement cannot be modified without West Slope consent and accordingly any beneficial impacts could be completely stripped from the Agreement.	The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.
9	8. The issue of de-watering part of the Colorado River and the impact on water availability to senior water rights that pump from the Colorado River between Granby and Kremmling is not addressed.	
10	9. There appear to be issues regarding rafting and impacts that are not adequately addressed.	
11	10. Overall there is an issue regarding not fully analyzing cumulative impacts of future projects including particularly Moffat Tunnel expansion that will have a significant impact on future water flows in the Colorado River.	

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		In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which typically are more critical for aquatics, water quality, and other flow-related resources. 5. Reclamation does not believe that implementation of the proposed action would require any change in the outlet works at Granby Reservoir. The spillway at Granby Reservoir consists of an ogee crest at an elevation of 8,260 feet, which is approximately 130,000 AF below the full level; and two radial gates that are used to regulate spillway flows. The combined capacity of the spillway gates and outlet is about 2,600 cfs at an elevation of about 8,265, and increases to more than 12,000 cfs with a full reservoir. In a paper spill condition, the spillway gates could be operated to attenuate flood flows below Granby Dam. The Subdistrict has proposed a modified operation of prepositioning to mitigate effects on water levels in Granby Reservoir. See revised text in Section 3.5.4 of the FEIS for discussion of proposed mitigation 6. Mitigation is being proposed that would minimize the adverse effects of prepositioning on Granby Reservoir water levels. See response to Comment No. 2 and Section 3.5.4 of the FEIS for a discussion of modified prepositioning. 7. The City of Longmont indicated they would consider enlargement of Ralph Price Reservoir to store its Windy Gap water under the No Action Alternative if the WGFP is not built. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is reasonable to assume that the City of Longmont would evaluate this course of action if the proposed project is not implemented.

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		8. The Shoshone call reduction is analyzed as a reasonably foreseeable action in Section 3.5.3.2 under the subsection Colorado River and in Section 8.4.2.6 of the Water Resources Technical Report. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. The analysis is based on the terms and conditions of the current agreement, which is the best available information. The Subdistrict will continue to operate the project in accordance with the Windy Gap water rights decrees and state water law to protect senior water rights. The Subdistrict will comply with all applicable provisions of existing permits and the 1980 Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project and the 1985 Supplement to the Agreement of April 30, 1980 regarding rancher diversions and bypassing water at Windy Gap to maintain specified minimum flows in the Colorado River below Windy Gap. 9. Impacts on senior water rights that pump from the Colorado River, like those that occurred in 2002 due to low water levels in the Colorado River, are not caused by the Windy Gap Project. Windy Gap did not pump in 2002 because it did not come into priority. Windy Gap is junior to the water rights that pump from the Colorado River between Granby and Kremmling and, therefore, would not impact their ability to pump. 10. Substantive issues related to rafting impacts, including changes in flows and potential impact to visitor user days were discussed in the Recreation section of the DEIS. The FEIS includes some revision in the assessment of rafting impacts to clarify the assessment. 11. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project, including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than the amount used in the hydrologic modeling for the WGFP. Denver Water changed their demand estimate after the WGFP hydrologic analysis was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP.

Com-ment	Letter #1096	Response
12	Mr. Will Tully December 18, 2008 Page 4 11. The overall problem of Grand Lake water quality needs to be mitigated and addressed adequately.	12. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. Mitigation measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.
13	12. One of the primary purposes of the project, as stated in the draft EIS, is to firm up Middle Park's water which has not occurred. The Middle Park Water Conservancy District has briefly stated its issues of concern. As indicated, it is hopeful that these issues can be resolved in this process as well as an acceptable agreement arrived at that will address, jointly with other entities such as Grand County and the River District, the overall impacts of this particular project. Very truly yours, Duane Scholl Duane Scholl, President DS:cm	13. The WGFP purpose and need statement indicates the need to provide up to 3,000 AF of storage to better firm MPWCD water deliveries. Additional storage would provide a firm yield of about 429 AF to the MPWCD, but would not firm the entire 3,000 AF. Paragraph 2 of the "1985 Supplement" to the "1980 Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project" states that "The Subdistrict will dedicate and set aside annually, but noncumulatively, at no cost to Middle Park, 3,000 acre feet of water in Granby Reservoir that is produced each water year from Subdistrict water supplies, for beneficial use without waste, either directly or by exchange or substitution in Middle Park." The Subdistrict has no obligation to provide water to Middle Park in any year when such water cannot be produced from Subdistrict supplies. Middle Park has been offered the opportunity to participate in the WGFP and improve their yield with storage in much the same manner as other WGFP Participants.

Com-ment	Letter #426	Response
1	WGFP 426 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 **Les Williams** MR. WILLIAMS: My name is Les Williams. I'm the President of the Board of Directors of Municipal Subdistrict of Northern Colorado Water Conservancy District. I've served on the Board of Directors of the Northern Water and its subdistrict for nearly 20 years. During that time, I've watched this region change and grow. I've seen rows of houses sprout up where there used to be rows of corn. The secret is out. This is a great place to live, and a whole lot of people are going to continue to move here. As our population has grown, and then grown some more during the past two decades, I've seen new hospitals built, I've seen new schools constructed, I've seen roads paved. But there hasn't been a major water project constructed to serve this region since the mid-1980s, when the original Windy Gap project was built. We need more water. And we need the infrastructure to make it happen. I'm proud to stand here and speak to you tonight in support of the Windy Gap Firming Project. It's environmentally sensitive and economically sound. And it'll help Northern Colorado get some of the water it desperately needs. Windy Gap Firming Project will help complete an existing project, which is the Windy Gap Firming -- the Windy Gap project, which finished construction in 1985. The Environmental Impact Statement for the original project envisioned more storage would be added to the project in the future. That's what the Windy Gap Firming Project is. That extra storage that was part of the plan all along. Also, it's important to understand that when this project was built, it's always been the plan that the cities who own Windy Gap water would grow in their demand for it. This has always been intended as a future supply, and the future is now. The Windy Gap Firming Project will use the same Colorado River water rights which the subdistrict filed on in the 1960s and 1970s. It's not going to divert more water from the Colorado River than the amount allowed under those original water rights. The subdistrict spent more than $10 million dollars to mitigate the impacts from the expected diversions. That money helped build or forward mountain reservoir which provides water to a lot of people on the West Slope. Windy Gap Firming Project is a great example of how to build a much-needed water project in a way that makes sense economically and environmentally. And that's through regional collaboration. Instead of each of the participating water providers going out and pursuing their own projects, they have come together to cooperate and build one reservoir. A reservoir that has the potential to offer wonderful recreational opportunities. During the past five	1. Thank you for your comment

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1	years, the subdistrict and the participants explored more than 200 options for making the Windy Gap Firming Project a reality. We chose Chimney Hollow reservoir because we believe it's the most economically and environmentally responsible. The subdistrict board isn't naive. We know that a water project like Windy Gap Firming Project has impacts on the environment. As a board member and a life long resident of Colorado who cares deeply about our rivers and the natural resources that make our state the tremendous place it is, I want you to know that we're committed to addressing the environmental concerns on the West Slope. We have presented an offer to Middle Park Water Conservancy District and Grand County to provide water for West Slope residents and help address the low flow concerns on the Colorado River. Everyone who is here tonight to make comment is an important part of the process, because it's only when we understand what concerns there are that we can work to address them. There's no such thing as a perfect project. But there are darn good projects, and this is one of them. It'll help provide water that we really need, and I firmly believe it can do so in a way that respects the needs of our neighbors on the other side of the mountains as well. Let's communicate and collaborate to get this built and make this the best project it can be. Thank you.	

Com-ment	Letter #1108	Response
1	**NATIONAL WILDLIFE FEDERATION®** 2260 Baseline Road, Suite 100 Boulder, CO 80302 www.nwf.org December 28, 2008 Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 Mr. Chandler Peter, P.E. Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 *Via email to WTULLY@gp.usbr.gov and chandler.j.peter@usace.army.mil* Re: Windy Gap Firming Project Draft Environmental Impact Statement Dear Mr. Tully and Mr. Peter, On behalf of the National Wildlife Federation (NWF), I'm writing to submit our comments on the Windy Gap Firming Project Draft Environmental Impact Statement (WGFP DEIS). NWF is a not-for-profit conservation, education and advocacy organization with the mission to inspire Americans to protect wildlife for our children's future. Since 1936, NWF has been working to protect America's wildlife. NWF represents members and supporters joined by affiliated wildlife organizations in 47 states and territories. We would like to draw your attention to several concerns regarding the potential effects of the WGFP. In addition to these comments, NWF joins in the separate comments provided by Trout Unlimited, Western Resource Advocates, and Grand County. **Impacts to Big Game** We are concerned about the level of detail that was used to study migration corridors, summer concentration areas, and winter ranges for the large mammals in the area of WGFP. The WGFP DEIS states, "No major large game migration routes exist within the East and West Slope study areas (CNDIS 2006 and SREP 2005) … The CDOW has further identified seasonally important *NWF – Protecting wildlife for our children's future*	1. According to standards for the National Environmental Policy Act (NEPA) established by the Council on Environmental Quality, the information presented in a NEPA document should be based on the best available existing information. The CNDIS is updated regularly by CDPW and is generally considered the best available information for most large mammal species. This information was further supplemented with site-specific and local information provided by wildlife experts from the CDPW, U.S. Forest Service, and property owners. Where additional information was needed, field surveys were conducted by a qualified wildlife biologist.

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1	areas, including winter range, winter concentration areas, and severe winter range for several large game species within the study areas (CNDIS 2006)" (p. 3-177). The Colorado Natural Diversity Information Source (NDIS or CNDIS) is cited as the source for this data. However, the disclaimer on the Colorado NDIS website states, "The information portrayed on these maps should not replace field studies necessary for more localized planning efforts" (http://ndis.nrel.colostate.edu/ftp/index.html). Based on the Colorado NDIS's statement, more extensive field studies are necessary to determine whether any large mammal migration routes, winter range, winter concentration areas, and/or severe winter range will be affected by the proposed project.	
2	There would be a loss of 810 acres of large mammal habitat under the Proposed Alternative, which provides winter range for elk and winter range, winter concentration areas, and summer range for mule deer. The DEIS doesn't address how this loss of habitat would be mitigated and to where the wildlife would be displaced. There is the potential for conflict if large mammals are displaced onto private lands where they have fewer protections or if they are displaced in such a way that more vehicle collisions result. The DEIS should address how large mammal habitat loss will be mitigated.	2. Many of the issues identified in this comment are addressed in the DEIS. New and updated information provided by CDPW has been added to Sections 3.12.1.7 and 3.12.2.6 of the FEIS. Because of the importance of the Chimney Hollow area as wildlife habitat, loss of the 810 acres of large mammal habitat will be addressed in the Fish and Wildlife Mitigation Plan that was developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).
	Impacts to Recreation and Socioeconomics	
3	We are generally concerned about the potential impacts of the WGFP on recreation activities such as rafting and kayaking. As the DEIS notes, boating on the Upper Colorado River generated a direct economic impact of approximately $3.4 million and a total economic impact of $8.7 million in 2007 (DEIS at 3-275). The DEIS indicates that the "worse-case individual year" economic impact to recreational boating from decline in water flows due to the WGFP's proposed action would be a loss of approximately $556,000, or roughly one-sixth of the yearly direct economic impact occurring in 2007 (DEIS at ES-19). This loss of revenue could substantially impact the recreational boating industry, reducing the number of jobs and other economic benefits of the industry.	3. The analysis of boating on the Colorado River is based on changes to preferred boating flows using daily flows for the 47-year study period. Based on comments received on the DEIS, revisions were made to simplify the potential impacts to boating as a result WGFP operation. Substantive issues related to rafting impacts, including preferred flows and potential changes in user days, are discussed in Section 3.19.2 of the FEIS. Revised economic effects to boating are discussed in Section 3.22.2 of the FEIS.
4	We are also concerned about some conflicting data in the DEIS on economic impacts to recreational boating. Table ES-9 indicates a potential annual economic decline in recreational boating revenue due to the proposed action of $10,195 (DEIS at ES-19), while Table 3-142 indicates a potential annual economic decline of $142,547 (DEIS at 3-289). The discrepancies between the data in these two tables should be explained and corrected.	4. The difference between the two boating impact estimates in the DEIS is because the potential average annual decline in boating revenue of $10,195 on page ES-19 is for the Proposed Action only and the higher number of $142,547 in Table 3-142 is for the Proposed Action plus cumulative effects of other reasonably foreseeable actions. These values have been revised in the FEIS as noted in response to Comment No. 3.
5	We are also troubled by the relative lack of analysis of the impacts of the proposed action to recreational angling. The DEIS concludes, "Projected effects to fish habitat are not predicted to translate to a loss in angling opportunities or fishing success…. No measurable effect to angler use days on the Colorado River or associated economic effects were identified for any of the alternatives" (DEIS at 3-289). Nevertheless, the DEIS states that the proposed action would result in a decrease of up to 11% in monthly flow between May and September in the reach	5. The EIS states that hydrological changes are unlikely to adversely impact sport fishing under any of the alternatives. This is based on both the timing of flow changes and the results of the aquatic resources analysis. Additional analysis to better illustrate potential impacts to aquatic resources was added to Section 3.9.2 of the FEIS. The FEIS includes additional mitigation measures for aquatic resources, as described in Sections 3.8.4 and 3.9.4. These measures include
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	January 14, 2009 Page 3	nutrient reduction measures to improve water quality in the Fraser River, Willow Creek, and Colorado River. See the response to Comment No. 2.
5	between Windy Gap Reservoir and the Williams Fork, an area designated as a "Gold Medal stream for outstanding fishing opportunities" (DEIS at 3-231 and 3-238). In the Aquatic Resource section, the DEIS concludes, "The greatest decrease in existing habitat would occur from Windy Gap Reservoir downstream to the Williams Forks [sic], where adult rainbow trout habitat would decrease up to 24 percent in 4 out of 10 years for the action alternatives" (DEIS at 3-147). Despite the flow reduction and the potential impacts to fish habitat, and thus to fish populations, the DEIS provides no analysis of the potential effect on recreational angling.	6. See response to Comment No. 5. The assessment of impacts to aquatic resources, and hence the recreational fishery, was conducted using a River2D IFIM model that simulates fish habitat changes under alternative flow conditions. A decrease in streamflow alone does not always reflect a negative impact to aquatic habitat because a reduction in high flows can increase aquatic habitat depending on the species and life stage. The aquatic analysis also considered changes in water quality, temperature, and channel morphology. The greatest flow reductions cited in the comment are during peak flow periods, which are well above what is necessary to maintain a recreational fishery under any alternative.
6	Next, the DEIS states that the proposed action would result in a maximum streamflow reduction of 15% in June and 18% in July in the reach between the Williams Fork and Kremmling, which includes Gold Medal waters in the section between the lower boundary of Byers Canyon and Troublesome Creek (DEIS at 3-238 – 239 and 3-231). According to Table 3-90, this section of the river could experience as much as a 9% decrease in flow in average years and as much as a 12% decrease in wet years (DEIS at 3-139). Yet the Environmental Effects section (3.19.2) provides no analysis of the potential effect of these flow reductions on recreational angling.	
7	The Colorado River reach between the Pumphouse and State Bridge contains designated Wild Trout water. The DEIS states there were "about 30,000 to 40,000 annual user days for fishermen in 2004" (DEIS at 3-233). According to Table 3-90, this section of the river could experience as much as a 4% decrease in flow in average years and as much as a 6% decrease in wet years (DEIS at3-139). Nonetheless, the Environmental Effects section (3.19.2) provides no analysis of the potential effect of these flow reductions on recreational angling.	7. See response to Comment Nos. 5 and 6.
8	We are most concerned that the DEIS potentially underestimates the impact of the proposed action on recreational boating and angling. The DEIS evaluates potential recreation effects of the proposed WGFP "based primarily on changes in hydrologic conditions…. Hydrologic data for average, wet, and dry years was used in the evaluation" (DEIS at 3-235). As Trout Unlimited (TU) points out in its comments about the WGFP DEIS, the "DEIS analysis relies on a hydrological model," the Boyle Model, "that is inadequate as a tool to predict and assess impacts on aquatic resources." The problems with the hydrologic model's ability to predict and assess impacts to aquatic resources similarly apply to assessing impacts to recreational activities. As TU's comments indicate, the model yields average flow values; overestimates anticipated flows; and yields isolated dry, average, and wet years data (see full related comments and explanations by TU). As a result, use of an inadequate hydrological model yields inaccurate representations of the potential economic effects to, and user-day ramifications for, recreational boating and angling.	8. Revisions and additional discussion was added to Section 3.5.2.2 of the FEIS to better explain the use of hydrologic data. See also responses to Trout Unlimited's Comments Nos. 4, 5, and 6 (Letter #1126) regarding the adequacy of the model to predict and assess flow-related impacts. The comment refers to use of average flow values, overestimation of anticipated flows, and the model yields isolated average, wet, and dry year data. The response addresses these three issues. a. Use of average flow values. A combination of daily and monthly hydrologic data were used for evaluations of impacts to aquatic resources. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. In addition to monthly data, two sets of daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. Hydrologic analyses based on daily variations were used in resource assessments
9	**Impacts to flow rates and stream ecosystems** Each alternative, including Alternative 2 (Proposed Alternative), would result in increased stream diversions from the Colorado River and changes in releases from Granby Reservoir. We	
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		where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily hydrologic data were used as an input parameter for the River2D model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for aquatic resource evaluations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects on aquatic resources for nondrought conditions. b. Overestimation of anticipated flows. The model does not overestimate anticipated flows. The WGFP model was simulated using a monthly time-step for the study period from 1950 through 1996. Hydrologic output was generated for each month of the study period. This monthly output was summarized (monthly averages) for all 47 years to characterize hydrologic changes over the entire modeled period. Because averages can be skewed by extreme events, the monthly model output for the five driest and five wettest years were averaged separately from the average of the entire study period to characterize hydrologic changes associated with the alternatives in dry and wet conditions, respectively. Use of mean values is a reasonable and often applied approach for evaluating hydrologic results and for making relative comparisons of changes in flow, and was approved by the USACOE and Reclamation for purposes of this EIS. In addition, the resource evaluations did not rely solely on these average monthly values. A combination of daily and monthly hydrologic data were used for evaluations of impacts to aquatic resources. See response to part a. of this comment. c. The model yields isolated average, wet, and dry year data. The model does not estimate flows during average, wet, and dry years in isolation. The model is simulated using a monthly time-step for the entire 47-year study period from 1950 through 1996; therefore, model output reflects the carry-over or recovery effects of

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		additional Windy Gap diversions in wet years following dry years. Although the wet and dry year averages are averages of five individual years within the study period, the flows in those years reflect the effects of operations in preceding years (i.e., reservoir releases and spills). The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. Use of data for the entire study period provided an indication of the overall range and frequency of resource impacts. The Aquatic Resource analysis uses daily streamflow data to determine impacts. These flow data included natural flows, existing conditions, and the alternatives for average, wet, and dry hydrologic conditions. See also response to Comment Nos. 5 and 6.

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9	January 14, 2009 Page 4 are concerned about the effects of flow changes and increased stream diversions to the food webs that support Colorado River fisheries. In April 2008, Grand County published Phase 2 of their Stream Management Plan (SMP), which presents scientifically-based recommendations for optimal environmental stream flows along the Upper Colorado River. The goal of the ongoing development of a SMP is to protect aquatic habitat and recommend a flow regime that will, "best maintain the ecological needs of the stream in relation to its fisheries" (Grand County SMP, p. ES-3). The report recommends increasing winter flow rates from 20 cfs (cubic feet per second), the current flow rate advocated by the Colorado Water Conservation Board, to 100 cfs (Grand County SMP, Table ES-1). The report further recommends summer flow rate increases from 40 cfs to 200 cfs (Grand County SMP, Table ES-1). A flow rate of 200 cfs is also consistent with improving angling opportunities in this section of the river, which represents the major recreational use of the section between Windy Gap and Williams Fork and the start of the Gold Medal Fishery on this portion of the Upper Colorado River (Grand County SMP, Table ES-1). The Grand County SMP recommendations are surprisingly consistent with the U.S. Fish and Wildlife Service's recommendations from the 1951 report on water flow requirements for fisheries below the Granby dam (USFWS 1951). Most important to maintaining the food web of macroinvertebrates to support fisheries in the Upper Colorado River is the presence of periodic flushing (Wootton et al. 1996 "…in the absence of scouring floods, the food web beneath the fish collapses" p. 1560)[1]. The current policy is for a flush of 450 cfs below Windy Gap (3 days, once every 2 years); the Grand County SMP recommends that the flow rate during the flushing period be increased to 750-1200 cfs to best maintain trout fisheries. Other negative impacts associated with the absence of periodic flushing include: "a reduction in diversity and/or abundance of benthic invertebrates and simplification of the stream ecosystem;" "increased infilling of fine sediment, leading to a decreased habitat (and flood refuge) area for benthics and an altered channel bed composition;" "reduced intragravel flow resulting in depleted oxygen and less-fresh particulate organic matter available to fish eggs and stream insects;" "a change in the timing of invertebrate emergence;" "an altered benthic community composition in favour of chironomids;" and "increased invertebrate body size and resistance to predation by trout" (Clayton & Westbrook 2008, p. 975-976)[2]. [1] Wootton, J.T., M.S. Parker & M.E. Power (1996). "Effects of Disturbance on River Food Webs." Science 273 (5281): 1558-1561. [2] Clayton, J.A. & C. J. Westbrook (2008). "The effect of the Grand Ditch on the abundance of benthic invertebrates in the Colorado River, Rocky Mountain National Park." River Research and Applications 24: 975-987. *NWF – Protecting wildlife for our children's future*	9. See response to Comment No. 8. The aquatic resource analysis uses daily streamflow data to determine impacts. These flow data included natural flows, existing conditions, and the alternatives for average, wet, and dry hydrologic conditions. In contrast, the SMP used only the weighted usable area graphs to determine the preferred flow range (optimum to critical minimum) without regard to whether that flow was available or could be maintained under either natural or regulated conditions. Optimal flow, as defined by weighted usable area, rarely exist, even under natural conditions. We feel that the more appropriate approach, and the approach that is consistent with guidelines for application of the instream flow methodology, is to use a hydrologic and habitat time series as applied in the Aquatic Resources Technical Report (Miller Ecological 2010). The Gold Medal designation requires that waters with this designation meet criteria for the number of trout greater than 14 inches long/per acre and number of pounds per acre. Many factors can impact fish density and size. Habitat and food resources are included in those factors. Based on the results of the aquatic analysis, food resources are not expected to change, and habitat would decrease in some years. Another factor that can impact fish populations more rapidly is fishery management, in particular harvest regulations. CDOW studies during the mid- to late-1970s showed that restricting harvest limits or terminal tackle could result in large increases to fish populations in Colorado rivers. The Project proponent or Reclamation do not specify fishery management for the Colorado River or the reservoirs. We have assumed that management of those waters would be consistent with management in the recent past. Therefore, we do not expect that WGFP would alter the Gold Medal designation. Flushing flows were evaluated using the data from the hydraulic model. The sediment transport analysis showed that fine sediment up through medium gravel would be moved by flows of 450 cfs. Very coarse gravels are moved by flows of about 1200 cfs. The range of size classes moved by the 450 cfs flow would clean spawning gravels and maintain habitat for aquatic invertebrates. These conditions would maintain macroinvertebrate diversity and aquatic habitat for spawning and incubation. Fine sediment is not expected to accumulate in any greater amount than is currently present. The Fish and Wildlife Mitigation Plan includes an increase in flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the

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9	Given that flow rates are already so far below optimal environmental flows, we are concerned that additional stream diversions will further degrade fisheries and recreational angling opportunities in Grand County and the Upper Colorado River ecosystem.	
10	**Lack of Analysis of Climate Change Impacts** We are troubled by the fact that there is no assessment of the impact of climate change in the DEIS. The DEIS uses a 47-year hydrological model that does not seem to address the role of global warming in changing the water forecast for the Upper Colorado River, and the resulting impacts on fisheries, habitat, and related issues. Climate models and hydrological studies project a 4°F temperature rise in Colorado by 2050; a 6-20% runoff decline in the Upper Colorado River Basin by 2050; "a precipitous decline in lower-elevation (below 8200 ft) snowpack across the West by the mid-21st century" and a 10-20% decline in "Colorado's high-elevation snowpack (above 8200 ft) within the same timeframe"; that the onset of spring runoff shifted two weeks earlier between 1978 and 2004, and that the "timing of runoff is projected to shift [even] earlier in the spring, and late-summer flows may be reduced."[3] The overwhelming amount of evidence of these changes demands that the impacts of climate change be assessed in the DEIS.	10. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS.
11	**Incorporation by Reference of the "Healthy Rivers, Healthy Communities" Proposal from the Save the Poudre Coalition** Attached to these comments is a copy of a document prepared by the Save the Poudre Coalition entitled "Healthy Rivers, Healthy Communities: A Balanced Proposal for the Cache la Poudre River in Colorado" This Healthy Rivers proposal was prepared to address another water project, the proposed Northern Integrated Supply Project (NISP), but much of the information in the proposal is also very relevant and applicable to the proposed Windy Gap Firming Project. (As noted elsewhere in these comments, NISP is designed to serve many of the same water needs as the WGFP, and ought to be analyzed together with the WGFP, as well as other projects, in a single EIS.) Therefore, NWF hereby incorporates the Healthy Rivers proposal by reference in these comments, and requests that the Bureau consider it as comments on the WGFP DEIS. Among the information in the Healthy Rivers proposal that is relevant and applicable to the WGFP is the following: 1. A demonstration that population growth projections for many northern Front Range communities are unrealistically high, especially when current economic conditions are considered. (Pages 6 – 8.) [3] Andrea J. Ray, et al., "Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation," A Report by the Western Water Assessment for the Colorado Water Conservation Board" (Boulder: University of Colorado, 2008): 1-2. *NWF – Protecting wildlife for our children's future*	11. Thank you for the information. A response to the specific issues you raised follows. 1). The recession has indeed had an impact on growth in the past several years in many previously fast-growing areas, and the Participant service areas are no exception. However, recessions are short-term economic phenomena, similar to economic boom growth. Long-term growth projections are normalized to "smooth out" cyclical high- and low-growth periods. Projections used in the WGFP EIS are consistent with projections used by the other statewide planning efforts. 2). The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. These measures would not offset the overall need for additional water supplies in the future, but could change or delay the timing of the need. 3). The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yields anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s)

Com-ment	Letter #1108	Response
	January 14, 2009 Page 6 2. A demonstration that reasonable and likely demand management measures will result in significant reductions in per capita water demand on the northern Front Range. 3. A demonstration that transfer of agricultural water rights from (a) agricultural lands that are displaced by development (pages 12 - 13), and (b) rotating fallowing agreements (pages 13 – 14) can meet the future water needs of expanding Front Range communities.	would be the most efficient way to collectively firm their Windy Gap water supply. Existing absolute Windy Gap water rights represent an existing source of water available to the Participants. However, additional infrastructure is necessary to provide reliable deliveries. Thus, the purpose of the WGFP is to fix a broken project, not to develop new sources of water.
11	4. A demonstration that transferring water from agricultural to municipal use is substantially less expensive than was assumed in the NISP DEIS. (Pages 15 – 17.) 5. A demonstration that, because of increases in the cost of energy and raw materials, construction of a new reservoir is likely to be substantially more expensive than was assumed in the NISP DEIS. All of the above information is highly relevant to the analysis of the Purpose and Need for, and alternatives to, the Windy Gap Firming Project and therefore should be considered by the Bureau in the preparation of the Final EIS for the Project.	4). See response to 3) above. 5). Actual construction costs would likely be higher than the $223 million estimate in the FEIS; however, infrastructure construction costs for many large projects has decreased substantially in the last year. Updated costs would be developed as part of the final design for the proposed Project.
12	**The Purpose and Need Statement, and the Range of Alternatives, in the DEIS Are Too Narrow** The DEIS presents the following as the Purpose and Need for the Windy Gap Firming Project: > The purpose of the Windy Gap Firming Project is to deliver a firm annual yield of about 30,000 AF of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project and to provide up to 3,000 AF of storage to firm water deliveries for the MPWCD. Firm water deliveries from the Windy Gap Project are needed to meet a portion of the existing and future demands of the Project Participants. By defining the Purpose and Need so narrowly, the DEIS implicitly rules out all other alternatives for meeting the water supply needs of the participants. Such alternatives include, for example, water conservation, transfer of water from agricultural to municipal use, and alternative sources of supply, but no such alternatives are analyzed in the DEIS because they do not fit within the artificially narrow Purpose and Need. The true purpose of the project is to contribute to meeting the water needs of the participants, which purpose can be met by many means other than firming deliveries from the Windy Gap Project. The Purpose and Need statement should be revised to reflect that broader purpose, and a broader range of alternatives for meeting that broader purpose should be analyzed. *NWF – Protecting wildlife for our children's future*	12. See response to Comment No. 11(3) above. In addition, many of the WGFP Participants have additional future water needs beyond what the WGFP would supply and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

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12	January 14, 2009 Page 7 It is unlawful for an agency to arbitrarily restrict its purpose so as to exclude otherwise viable alternatives. See Simmons v. Corps of Engineers, 120 F.3d 664, 666 (7th Cir. 1997) ("If the agency constricts the definition of the project's purpose and thereby excludes what are truly reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act."). See also City of New York v. U.S. Dep't of Transportation, 715 F.2d 732, 743 (2d Cir. 1983) ("an agency will not be permitted to narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered"). In Simmons, the Corps of Engineers defined its purpose to be to build a reservoir that would supply the water needs of two cities. Because the Corps had defined its purpose so narrowly, it did not analyze alternatives that would supply the cities' needs in other ways. The court held that, by so narrowly constricting its range of alternatives, the Corps had violated NEPA: "We conclude that the U.S. Army Corps of Engineers defined an impermissibly narrow purpose for the contemplated project. The Corps therefore failed to examine the full range of reasonable alternatives and vitiated the EIS." 120 F.3d at 667. Similarly, the Bureau has violated NEPA by narrowly defining the purpose of the Windy Gap Firming Project so as to exclude other reasonable alternatives for meeting the water needs of the participants.	
13	**The Windy Gap Firming Project and Other Water Projects Should Be Considered Together in a Single Environmental Impact Statement** Neither the need for, not the environmental impacts of, nor alternatives to, the Windy Gap Firming Project (WGFP) can rationally be considered in isolation. The WGFP is one of many existing and proposed projects that divert or will divert water from the Upper Colorado River and its tributaries, and it is one of many existing and proposed projects that supply or will supply water to the front range of northern Colorado. The operations of the existing projects and the construction of the proposed projects should be considered together in a single EIS. *The cumulative impacts of multiple diversions should be evaluated in a single EIS.* The regulations implementing NEPA require that "cumulative actions" be considered together in a single EIS. 40 C.F.R. § 1508.25(a)(2). "Cumulative actions" are defined as actions "which when viewed with other proposed actions have cumulatively significant impacts." *Id. See, e.g.,* Thomas v.Peterson, 753 F.2d 754, 759 (9th Cir. 1985). The Windy Gap Firming Project is but one of several federal, federally-funded, or federally permitted projects that already divert or will divert water away from the Upper Colorado River and its tributaries. Such projects include, but are not limited to, • the existing Windy Gap Project, • the proposed Windy Gap Firming Project, • the Colorado-Big Thompson Project, • the Moffat Tunnel, • the proposed Moffat Tunnel Expansion, • the Roberts Tunnel, and *NWF – Protecting wildlife for our children's future*	13. The WGFP FEIS fully considered the cumulative impacts of all identified reasonably foreseeable future actions, as well as past and present actions where overlapping effects would occur. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver reduced their Blue River demand following completion of the WGFP hydrologic modeling. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

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13	January 14, 2009 Page 8 • the FryingPan/Arkansas Project. These multiple projects unquestionably have a significant cumulative impact on the fish, wildlife, recreational opportunities, and other resources of the Upper Colorado River. Moreover, the cumulative impact of the projects is much greater than the sum of the individual impacts. While the diversions by each project individually may have only an incremental impact on streamflow, water temperature, and other factors affecting fish and wildlife, the cumulative effect, at some times and places along the river, may be catastrophic: the nearly complete drying of the river and resultant severe increase in water temperature and loss of fish habitat. For example, as explained in detail in the comments being submitted by Colorado Trout Unlimited and others, the simultaneous operation of just two of these projects – Windy Gap and Colorado-Big Thompson – may result in severe reductions in streamflow in the Upper Colorado during the summer in dry years. The only way to accurately assess the cumulative impacts of these multiple projects, and to develop alternative strategies for reducing and mitigating those impacts, is to develop a single EIS that considers the joint and cumulative impacts of the operations of all of these projects. Such an EIS would be required even if it were not for the proposed Windy Gap Firming Project. The Colorado-Big Thompson (C-BT) project alone is long overdue for an environmental impact statement assessing the impacts of its operations. It is now beyond argument that NEPA applies to the ongoing operations of water projects that were initially constructed before NEPA's passage. The operations of Glen Canyon Dam, for example, have already been analyzed in two different EIS's, the Bureau has prepared an EIS for operations of the Aspinall Unit on the Gunnison River, and the Bureau has prepared an EIS for the coordinated operations of Lake Powell and Lake Mead. Yet the operations of the C-BT Project have never been analyzed in an EIS. The proposed WGFP, which would exacerbate the impacts of the C-BT Project on Colorado River flows, water temperature, and other resources, increases the need for an EIS that examines the joint and cumulative impacts of both of these projects along with all of the other projects that divert water from the Upper Colorado River and its tributaries. *Multiple projects serving the same purpose and need, and alternatives to them, should be considered together in a single EIS.* The Windy Gap Firming Project is one of several federal, federally-funded, or federally permitted projects that supply or will supply water to the front range of northern Colorado. These projects include, but are not limited to: • the existing Windy Gap Project, • the proposed Windy Gap Firming Project, • the Colorado-Big Thompson Project, • the Moffat Tunnel, • the proposed Moffat Tunnel Expansion, • the Roberts Tunnel, • the proposed Northern Integrated Supply Project (NISP) *NWF – Protecting wildlife for our children's future*	CEQ regulations and case law provide clear guidance on the scope of a particular NEPA analysis with respect to possibly related actions. See 40CFR 1508.25. Courts have provided guidance on whether proposed projects are sufficiently interrelated to qualify as "connected actions," which should be considered together in a single NEPA analysis. The courts have generally applied an "independent utility" test to determine if two activities are closely connected, evaluating whether each of the activities could be undertaken on their own (even if they would benefit each other), or whether they are inextricably linked to each other or if they are similar projects being pursued by the same agency. The WGFP clearly has utility independent of the other water projects mentioned in the comment or considered part of the cumulative impacts in the FEIS; therefore, a single NEPA analysis of all of the projects is not required.

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13	January 14, 2009 Page 9 • the proposed Halligan-Seaman Project. These projects largely address the same overall purpose and need. Not only do they serve the water needs of same general geographic area, they are designed to serve many of the same specific participants. For example, six of the participants in the proposed Windy Gap Firming Project (Central Weld County Water District, Erie, Evans, Fort Lupton, Lafayette, and Loveland) are also participants in the proposed NISP, and three of the participants in the WGFP (Evans, Greeley, and Loveland) are also participants in the proposed Halligan-Seaman Project. Because these projects all supply water to the same geographic area, they are all, in effect, at least partial alternatives to each other. For example, as discussed below, re-allocation of C-BT water from agricultural to municipal use could provide much, if not all, of the water that is needed by WGFP participants. Furthermore, other options, such as water conservation, are common alternatives to all of these projects. For these reasons, the operations of all of the existing projects listed above, as well as the construction of the proposed projects, are "connected actions" within the meaning of 40 C.F.R. § 1508.25(a)(1) and "similar actions" within the meaning of 43 C.F.R. § 1508.25(a)(3) and therefore should be considered together in a single EIS.	
14	**The DEIS Should Analyze and Consider the Alternative of Meeting Expanding Municipal Water Needs Through the Transfer of Water Rights from Agricultural to Municipal Use** Once the Purpose and Need of the Windy Gap Firming Project are properly defined – namely, to help meet the water needs of the participants – many alternatives emerge beyond those analyzed in the DEIS. One obvious alternative is to meet growing municipal water needs through the transfers of water rights, including shares in the Colorado-Big Thompson Project, from agricultural to municipal use. Transfers of agricultural water are such an obvious alternative for meeting municipal needs that they were considered to be part of the "No Action" alternative in the Army Corps of Engineers' DEIS for the Northern Integrated Supply Project (NISP). That is, the Corps assumed that, if NISP were not built, the participants would meet a substantial part of their water needs through acquisition and transfer of agricultural water rights.[4] In contrast, the DEIS for the Windy Gap Firming Project simply ignores the possibility of meeting municipal water needs through transfers of agricultural water (or, for that matter, through any other means besides firming the yield from the Windy Gap Project). The failure to consider such an obvious alternative is a violation of NEPA. In the case of the Windy Gap Firming Project, the alternative of transferring agricultural water to municipal water use is particularly compelling because, according to information in the DEIS [4] Although NWF believes that the Corps properly chose to consider the alternative of meeting municipal needs through transfers of agricultural water, NWF does not concur with the Corps' analysis of the cost and other impacts of that alternative. As explained in the attached "Healthy Rivers, Healthy Communities" report from the Save the Poudre Coalition, the Corps may have seriously overestimated the cost of such transfers and ignored alternatives, such as rotating fallow agreements, that could lessen the impacts of such transfers on the agricultural economy and on the environment. *NWF – Protecting wildlife for our children's future*	14. See response to Comment No. 11(3). In addition, water levels in Granby Reservoir are a result of annual runoff and water demand. A high water level in Granby Reservoir is generally reflective of a wet water year when runoff is high. C-BT delivery quotas are set annually, depending on available water and projected demand. As a water storage reservoir, Granby stores water in wet years so it would be available in dry years. Demand for C-BT water increases in dry years; therefore, there is not necessarily a surplus of C-BT water just because the reservoir fills. There is already an active leasing program for C-BT Project water among allottees.

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14	January 14, 2009 Page 10 itself, there is apparently more water available through the C-BT project than was expected at the time the original Windy Gap Project was designed. Specifically, according to the DEIS, one reason that the Windy Gap Project has not produced its expected firm yield is that, in many years, Granby Reservoir has been full: > No Windy Gap water was diverted in the 7 years between 1985 and 2006 because of either *a lack of available storage space in Granby Reservoir*, or Windy Gap water rights were not in priority during dry years. During this period, no Windy Gap pumping occurred in 1986, 1996 through 2000, and in 2002; only 300 AF were pumped in 2004. The lack of pumping in all years but 2002 and 2004 was due to *a lack of available storage space in Granby Reservoir* and/or limited demand for Windy Gap water. DEIS at 1-9 (emphasis added). If Granby Reservoir has been full more often than was expected when the Windy Gap Project was designed, it must mean that the C-BT Project has had more water on its hands than was expected, either because inflows into Granby Reservoir have exceeded expectation or because demand for C-BT water has been less than expected. Either way, the frequency with which Granby Reservoir has been full suggests that there is an abundance of C-BT water which is potentially available, through transfers, to meet the needs of the participants in the proposed Windy Gap Firming Project. The DEIS for the Firming Project must be revised to consider this alternative. Thank you for the opportunity to comment. We look forward to continued participation in this process. Sincerely,  Stephen C. Torbit, Director, Rocky Mountain Natural Resource Center *NWF – Protecting wildlife for our children's future*	

Com-ment	Letter #404	Response
1	WGFP 404 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Lane Wyatt MR. WYATT: I'm Lane Wyatt with Northwest Colorado Council of Governments. W-y-a-t-t for the last name. Northwest COG is the designated water quality management agency under the Clean Water Act for this region, originally including Grand County and the upper headwaters of the Colorado. Northwest COG has adopted what's called a "water quality management plan," a 208 plan. The plan has been approved by the EPA, the Water Quality Control Commissioner, the governor. Grand County uses it in their -- recognizes it in their land-use code. In that plan, it specifically identifies transmountain diversions as one of the largest pollution sources in the Upper Colorado. And in the Clean Water Act, hydrologic modifications are recognized as the source of the pollution. In your draft EIS, you sort of tacitly recognize the situation as far as the hydrologic modifications. There is a policy in the Northwest COG plan which states, "Project developers shall mitigate the impact of water quality in the aquatic environment caused by water projects." So, in order to be in compliance with the plan, the water quality impacts need to be mitigated. The purpose for the NEPA project is basically to disclose water quality impacts and other impacts. So it really becomes a question of, what are those impacts?	1. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would totally offset the anticipated nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.
2	So that brings me to my first point, recognizing the need to extend the review period. Because there is -- if you look at the technical documents as well, there is a couple thousand pages to get through, and that's a lot to ask, for people working during the day and to review it at night and to get through that much paperwork, to identify even what the impacts. But once you get through there a little bit, the EIS concludes, really, that, at least from a water quality standpoint, the impacts, on average, really aren't that dramatic. But if you dig a little bit further, however, you will see that those are really based on averages, averages that are included in modeling projections, averages like an average change in	2. The analysis of water quality impacts for the Three Lakes was conducted using daily data. The DEIS presented monthly average data and the range of daily values. Figures displaying daily values for total phosphorus, total nitrogen, chlorophyll *a* concentrations, Secchi-disk depths, and dissolved oxygen were added to Section 3.8.2.4 of the FEIS. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the

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2	Grand Lake clarity, as Dr. Stahl talked about, predictions based on average flows and average pumping rates. Even where the draft EIS evaluates a worst-case condition for temperature, the inputs in the model are based on median temperature conditions, median data temperature conditions. So a conclusion based on averages is a little bit like trying to explain to a cop who just pulled you over for going 80 in a 45: On average, I really don't speed. It just doesn't fit into context very well. It's really too important of a situation to base decisions based on experts' guesses, potentially.	chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP.
3	So that brings me to the second point. Mitigation should really be based on actual circumstances. And we would recommend that there be a monitoring mitigation link as part of a condition if you decide to approve this project. The link would be to appropriate action. For example, if temperature is increased beyond projections below Windy Gap, then bypasses would be increased. Or if clarity is degraded in Grand Lake, then some of the measures that the Bureau and the Northern are looking at, operational optimization or piping be implemented. If there is a trigger system in place, to address those real impacts from the project itself.	3. The FWMP includes installation of Colorado River real-time stream temperature sensors below Windy Gap Reservoir and above the Williams Fork River to monitor violations in the state temperature standard. Other monitoring, as described in Section 3.8.4 of the FEIS, would be used to evaluate the effectiveness of nutrient mitigation measures. See response to Comment Nos. 1 and 2 on water quality mitigation.
4	The third point is we would like to -- also to delay the decision that you make to include some of the information that's being developed through the Grand County Stream Management Plan, but also some of the work that's being done by the Bureau and Northern in trying to figure out how to optimize operations. And there is other kinds of new information that could be very useful in developing mitigation. Thank you.	4. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS is to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to avoid or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. Reclamation and Northern will continue to work with Grand County and others to evaluate C-BT Project operational changes that will improve water quality in the Three Lakes system regardless of implementation of the WGFP.

Comment	Letter #1107	Response

Northwest Colorado Council of Governments
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December 28, 2008

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Re: Windy Gap Firming Project Draft Environmental Impact Statement

Dear Mr. Tully, Mr. Peter and Mr. Gunderson,

Northwest Colorado Council of Governments ("NWCCOG") is the designated water quality management agency for the region of the state that includes the portions of the Upper Colorado River that will be impacted by the Windy Gap Firming Project. On behalf of NWCCOG) I have reviewed the Windy Gap Firming Project Draft EIS ("DEIS"). My review focused on whether the proposed project complies with the Areawide Water Quality Management Plan (208 Plan) for the NWCCOG region and provides for adequate water quality protection. My review is based on the DEIS and the pertinent Technical Reports referenced in the DEIS.

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1	Based on my understanding of the proposed project, it would not be in compliance with the policies and recommendations of the 208 Plan without additional mitigation and more detailed analysis. I have summarized my findings under the six 208 Plan Policies below. 208 Plan Policy 1. Protect and Enhance Water Quality **The surface and ground waters of the region shall be protected to minimize degradation of existing water quality and maintain existing and designated uses of those waters; waters not currently supporting designated uses shall be restored as soon as is financially and technically feasible.** *Findings:* The DEIS states that water quality in the Colorado River is good (DEIS page 3-66) and leaves one with the impression that water quality conditions in the lakes and reservoirs in Region 12 affected by the proposed project are generally in good condition (DEIS pages 3-68 to 3-77). The DEIS mentions aquatic weeds and algae in Shadow Mountain Reservoir, the presence of cyanobacteria and potential for microcystin toxicity in the Three Lakes system, and clarity concerns in Grand Lake but does not really acknowledge the severity of these problems and their association with current C-BT and Windy Gap pumping. The significant impact of Whirling Disease and its relationship to Windy Gap pumping is generally dismissed (DEIS page 3-133). The DEIS does identify existing exceedances of temperature standards in the Colorado River; temperature, pH, ammonia, total iron and copper standards in Willow Creek (DEIS page 3-67); dissolved manganese, temperature, and dissolved oxygen standards in Granby Reservoir (DEIS. Table 3-26); manganese in Shadow Mountain Reservoir (DEIS Table 3-28); and pH in Grand Lake (DEIS Table 3-30). The DEIS projects that the preferred alternative will contribute to additional exceedances of temperature standards (DEIS page 3-96), will slightly increase ammonia concentrations (DEIS, page 3-99) in the Colorado River; will increase concentrations of ammonia, dissolved iron and copper in Willow Creek (DEIS page 3-101); and will slightly aggravate existing average water quality and trophic status conditions in the Three Lakes system. The DEIS also identifies other stream conditions that are projected to worsen as a result of the proposed project but are not directly tied to protection of classified uses by adopted water quality standards. These include increased didymo algae concentrations in the Colorado River (DEIS page 3-101) and increased phosphorus loading to the Three Lakes system (DEIS page 3-104 to 3-107). Overall it is difficult to evaluate potential degradation of water quality associated with the proposed project because of the DEIS's predominant use of a steady state modeling approach, average flow and median water quality conditions. Conclusions about impacts in the DEIS are based on those methods and assumptions. This approach does not track with how compliance water quality standards are evaluated (e.g. 85th percentile of water quality data and low flow conditions). The DEIS only mentions that the WQCD may "determine the need for and antidegradation review" (DEIS page 3-86) but does not provide adequate	1. The current water quality of the lakes and reservoirs are quantified and compared to standards in the DEIS. Additional information was added to the FEIS to summarize water quality concerns. Current conditions include C-BT pumping and Windy Gap pumping. It is difficult to describe conditions without C-BT or Windy Gap pumping – Granby Reservoir and Shadow Mountain Reservoir did not exist before the C-BT Project construction. For Grand Lake, water quality conditions were reported in 1953 shortly after the start-up of the C-BT Project, where Secchi-disk depth readings ranged from 1.2 to 4.6 meters (May to October). Data do not exist to describe pre-C-BT conditions in Grand Lake other than the one data point for clarity in September 1941 (9.2 meters). The focus of the EIS is on the anticipated changes in water quality for the alternatives compared to existing conditions and the No Action Alternative. With respect to the DEIS's "predominant use of a steady state modeling approach, average flow, and median water quality conditions," it is true that a steady-state modeling approach was used for Colorado River water quality, using average flow and minimum flow conditions. See response to Comment No. 2 for why this approach was taken. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. See Section 3.8.4.2 of the FEIS for more information on temperature mitigation. There are not enough data to support a dynamic approach for other constituents, and the steady-state approach is adequate, especially the simulations for minimum flow conditions. It does not, however, allow for the computation of the predicted 85th percentile.

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1	information in a form that this review can be carried out. In order to comply with Policy 1 the project would, at minimum, need to provide 10 adequate monitoring tied to a response condition to insure that existing water quality is maintained; and 20 actually address rather than merely fund continued study of existing problems associated with CB-T and Windy Gap pumping into the Three Lakes system (DEIS Page 3-292) prior to compounding these problems with additional pumping from WGFP. As presented, the project would violate Policy 1.	2. A dynamic approach was used to model water quality for the Three Lakes system. The results are reported in the EIS in terms of annual averages, maximum chlorophyll *a* concentrations by year, and minimum Secchi-disk depths by year. Daily results were added to the FEIS (Section 3.8.2.4) and are also shown in the Lake and Reservoir Water Quality Technical Report (AMEC 2008).
2	208 Plan Policy 2. Water Use and Development **The impacts to water quality and the aquatic environment caused by water projects shall be mitigated by the project developer.** *Findings:* The DEIS raises concerns about infrequent reductions in fish habitat (DEIS page 3-137) and degraded conditions to stream conditions due to aquatic weeds (DEIS page 3-101). Water quality degradation is difficult to assess because the approach to analysis focuses on average conditions rather than compliance with standards which is more of a worst case analysis. There is no analysis of on going water quality concerns associated with C-BT pumping into the Three Lakes system and how the proposed project may affect that situation. The DEIS does not adequately disclose the extent and duration of the impacts to water quality and aquatic environment because of limitations in the steady state modeling and assumptions used. As a result, the proposed mitigation (DEIS page ES-21) is inadequate. Therefore, the project would violate Policy 2.	Current water quality issues, many of which are associated with C-BT pumping, are not the subject of this EIS but are described in the Affected Environment section to help understand existing conditions. The EIS describes the direct, indirect, and cumulative effects of the WGFP and proposes mitigation for the direct and indirect effects of the proposed project. C-BT pumping is accounted for in the model. The DEIS describes the predicted differences between existing conditions and the alternatives and, therefore, how the proposed project may affect the water quality concerns is addressed.
3	208 Plan Policy 3. Land Use and Disturbance **Land uses and disturbance shall not result in significant degradation of water quality nor impair the natural protection and/or treatment processes provided by wetlands, floodplains, shorelines, and riparian areas.** *Findings:* The project proponent identifies the need to provide erosion control during construction of facilities (DEIS page 3-292). For any construction in Grand County, the County is the designated Management Agency for implementation of these kinds of measures and would require a local permit to insure construction is done in a manner to minimize impacts. Further CDPHE will require a Storm Water Management Plan as part of their NPDES permit for construction activities. Permanent wetland impacts are proposed to be compensated by with on-site wetlands creation (DEIS page ES-21). With the assumption that these detailed site-specific mitigation plans will be adequate to address any impacts associated with land use and disturbance in Region 12 the proposed project could comply with this Policy 3.	With respect to the Colorado River, a steady-state modeling approach was used. QUAL2K is a steady-state model and uses a multitude of inputs and assumptions under steady-state conditions. This model is actively being supported by the EPA and steady-state water quality models have been used for decades by regulatory agencies and consultants (Birgand 2004). QUAL2E, the model on which QUAL2K is based, is considered a standard for water quality models (Chapra 1997; Shanahan et al. 1998). A dynamic water quality model relies on a much greater number of inputs and assumptions, many of which vary over time. Time series of inflowing water quality from tributaries, point, and nonpoint sources (at a fine time-step) are required. These data do not exist for the Colorado River, making it difficult to even consider a dynamic approach for the DEIS. QUAL2K was utilized on a date that was determined to be representative of low conditions when Windy Gap diversions could occur. In addition to considering average flows, the model was run assuming the minimum instream flow conditions (90 cfs) below Windy Gap Reservoir. This was done to overcome the limitation of using a steady-state model.
4	208 Plan Policy 4. Domestic, Municipal, and Industrial Water and Wastewater Treatment Facilities	Subsequent to development of the QUAL2K model, numerous temperature sensors were placed throughout the modeling domain during the summer months. With the addition of subhourly temperature data, a dynamic modeling approach for water temperature became feasible. As described in response to Comment No. 1, the dynamic temperature model was used to better assess violation of the chronic temperature standard for the Colorado River and develop mitigation measures. This approach allows for the more direct comparison with standards.

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4	**Decisions to locate water supplies, wastewater treatment systems, and other water and wastewater facilities shall be made in a manner which protects water quality and the aquatic environment. Where growth and development requires the need for additional facility capacity, existing facilities should be expanded in lieu of developing new facilities, unless expansion is not feasible because of technical, legal or political reasons.** *Findings:* The proposed project does not involve siting of new wastewater systems and the water supply facilities for the preferred alternative located in Region 12 are already in place. However, there is a significant concern related to existing wastewater treatment facilities and the affect of the proposed project on water quality. Water quality impacts identified in the DEIS assume unrealistic discharge effluent quantities and qualities for Three Lakes Water and Sanitation District (page 116, DEIS Stream Water Quality Technical Report) and the WWTP in the Fraser River watershed (page 30, DEIS Stream Water Quality Modeling and Methods Report). Mitigation for the proposed project should include paying to upgrade WWTPs to the level of treatment assumed in the DEIS. Otherwise, the proposed project violates Policy 2. 208 Plan Policy 5. Chemical Management **The uses of pesticides, fertilizers, algaecides, road deicing and friction materials, and other chemicals which would temporarily or permanently cause a significant degradation of water quality or impair the current or designated uses of these waters should be regulated to the extent allowed by law.** *Findings:* This policy does not appear to apply to the aspects of the proposed project in Region 12. 208 Plan Policy 6. Management System **The waters of the region shall be protected by a management agency structure within the existing governmental and regulatory framework that allows decisions to be made at the most appropriate level of control. For nonpoint source pollution control *the recommended level of management* is at the watershed level.** *Findings:* The DEIS identifies the proposed project as a nonpoint source pollution issue associated with hydrologic modifications (DEIS page 3-87) and recognizes local government authority to address impacts through special use permit reviews and 1041 permitting (DEIS page 3-294). Grand County will have permitting authority over all alternatives. The existing Windy Gap Project was permitted by Grand County. The proposed WGFP is a change in operations and facilities for that project and will therefore require a new or amended 1041 Permit. Grand County is the 208 Management Agency with appropriate jurisdiction over the proposed project under the 208 Plan and has indicated its intent to require a permit for the proposed project. This approach will comply with Policy 6.	3. A Stormwater Management Plan would be prepared as part of the NPDES permit for any of the ground-disturbing activities associated with the Project. All wetlands would be mitigated per 404 Permit requirements. 4. The analysis for the Three Lakes Wastewater Treatment Facility was revised in the FEIS (Section 3.8.2.4) using the WWTP's maximum allowable effluent discharge rate of 3.1 cfs. During development of the DEIS, a certain level of treatment needed to be assumed for future conditions for WWTPs in the Fraser basin. We assumed a level currently being successfully achieved elsewhere in the state at WWTPs that impact another critical water body (Dillon Reservoir). Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures include upgrades to the Fraser WWTP and implementation of best management practices and other erosion-control measures to reduce nonpoint agricultural sources of nutrient discharges in the Willow Creek drainage and elsewhere. These measures would offset the total nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River. 5. There are ongoing discussions between Grand County and the Subdistrict on the need for a new 1041 Permit or modification of the existing Windy Gap 1041 Permit The EIS provides an estimation of the anticipated direct, indirect, and cumulative effects of the proposed action based on available information and can be used in the 1041 process as necessary. However, resolution of this issue is not required for completion of the NEPA process or issuance of a Record of Decision. Additional discussion on this issue was added to Section 1.10.3 of the FEIS. As stated in response to Comment No. 3, the Subdistrict would comply with NPDES Stormwater Permit regulations for land-disturbing activities. The Proposed Action would not result in any land disturbances on the West Slope. Mitigation for nutrient loading would reduce nonpoint source nutrient loadings to the Three Lakes system form the WGFP and other watersheds in the area including portions of the Willow Creek and Colorado River watersheds. The DEIS, on page 3-294, recognizes that such requirements may exist and, if so, they will be followed. Reclamation takes no position on what, if any, local government authorities apply to the WGFP.
5		

Com-ment	Letter #1107	Response
	I hope this review is useful. If my interpretation of the 208 Plan is disputed then these comments and recommendations can be appealed to the NWCCOG Board of Directors for review. Sincerely, Lane Wyatt, PE CC: Gary Severson, NWCCOG Barbara Green, SullivanGreenSeavy James Newberry, Grand County	

Com-ment	Letter #377	Response
1	WGFP 377 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Shanna Koenig MS. KOENIG: Hi, my name is Shanna Koenig, and the last name is spelled K-o-e-n-i-g. And I am here on behalf of Northwest Colorado Council of Governments Water Quality and Quantity Committee. And a lot of what I was going to speak to tonight has already been said, so I'll just reiterate a few points. I think we all have heard tonight and understand that Grand County is in a critical situation. We have already heard about the amount of water being diverted to the East Slope, and we have heard about insufficient flows for agricultural irrigators to pump water from the Colorado River. We have also heard about insufficient flows for Hot Sulphur Springs for public water use and insufficient flows to protect fishing in the Colorado River. Additional diversions will only exacerbate the problem. We have concerns, the Northwest COG, that the description of the existing conditions outlined in the draft EIS does not adequately explain the degree to which existing water diversion projects already have affected the upper Colorado River.	1. The Affected Environment section of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Other sections in the EIS provide discussions on the existing condition and status of the various resources as a basis for comparing resource impacts. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make a reasonable comparison of the impacts of each of the alternatives. The WGFP Water Resource Technical Report (ERO and Boyle 2007) has additional information.
2	The Applicant alleges that there will not -- that there not be any significant new impacts. If that is the case, then the Bureau of Reclamation and Army Corp of Engineers should be sure to condition their approvals on that basis so, if there really are new impacts, they will be addressed.	2. The FEIS identified a number of impacts associated with the proposed action. Mitigation measures were developed to avoid or minimize impacts (See Section 3.25 of FEIS). The purpose of the EIS process is to evaluate and disclose potential impacts. This does not mean there will be no impacts or that all impacts can or will be mitigated.
3	And just really quickly, we have already touched a lot on socioeconomic impacts, but I just want to throw some additional numbers out there. In 2003, the direct economic impact of spending by tourists -- including travel, lodging, food and beverage, recreation and other visitor-related commodities -- equalled nearly $170 million. This directly accounted for 39 percent of employment in Grand County and contributed $7.1 million in local government taxes. However, the EIS only measures the impacts of the Windy Gap Firming Project related to the value of fishing, camping and boating, without including additional revenues generated by the activities. Even in the three limited activities the DEIS does measure -- boating, fishing and camping -- the analysis is limited	3. As explained in the Socioeconomics section, not all of the direct recreational value (expenditures) occur in Grand County (i.e., some of the supplies are purchased outside of the County). However, the full estimate of direct impacts of camping along the Colorado River and boating were used, which overestimates the impact. The socioeconomics section explains that this was done in order to account for the secondary impacts of direct expenditures in the County because estimates of the direct and secondary impacts to the County were not available. The Recreation and Socioeconomic analyses focus on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process and are the most likely to be affected by hydrological

Comment	Letter #377	Response
3	to a very narrow segment of activities and grossly underestimates the potential economic impacts that could -- that could be caused by Windy Gap Firming Project. And I think Becky Long did an excellent job of explaining that through her testimony as well. We would also ask that this comment period be extended so that we may have the time we need to thoroughly review the vast amount of information in the draft EIS. Thank you.	changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report in the Effects Common to All Alternatives section. Several mitigation measures, as summarized in Section 3.25 of the FEIS, contribute to mitigation of potential socioeconomic impacts including nutrient reductions in the watershed upstream of Windy Gap Reservoir; modifications in prepositioning to maintain higher water levels in Granby Reservoir; fish and wildlife mitigation measures described in the Fish and Wildlife Mitigation Plan (FEIS Appendix E) that was adopted by the Colorado Wildlife Commission and Colorado Water Conservation Board; and curtailed WGFP diversions as needed to protect flows for the annual Gore Race.

Com-ment	Letter #131	Response
	OFFICE *of* ARCHAEOLOGY *and* HISTORIC PRESERVATION ENV-6.00 245 OCT 2 1 2008 Tully 1340 UMT 1000 Collins 1005 McHeral 1340 Boston 1300 Goodenow October 15, 2008 Will Tully U.S. Bureau of Reclamation 11056 West County Road 18ER Loveland, CO 80537 Re: Comments on the Windy Gap Firming Project Draft Environmental Impact Statement (CHS# 48893) Dear Mr. Tully: Thank you for providing a copy of the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) for our review and comment. We have reviewed the DEIS and offer the following comments: General Comments:	
1	1. It appears that several acronyms have not been included in the Acronyms and Abbreviations list. We recommend a review of the document to ensure that all acronyms and abbreviations are included in this list as it facilitates reader comprehension of unfamiliar technical language. Missing acronyms that we identified include the following: Advisory Council on Historic Preservation (ACHP), American Indian Religious Freedom Act (AIRFA), Code of Federal Regulations (CFR), Denver and Rio Grande (D&RG), Historic American Engineering Record (HAER), Memorandum of Agreement (MOA), National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), Office of Archaeology and Historic Preservation (OAHP), Programmatic Agreement (PA), TAP, and Western Cultural Resource Management (WCRM).	1. Acronyms and abbreviations were updated in the FEIS.
2	2. It is unclear whether the project area of potential effects (APE) has been adequately surveyed for paleontological resources. The document states, "Information on potential paleontological resources was based on literature review and geology" and that "Paleontological resources are unlikely in this area because the geology is composed primarily of igneous rock" (p. 3-197). Has any survey for the presence of paleontological resources been conducted by a professional paleontologist in the project APE? Has a professional paleontologist been consulted regarding the presence of paleontological resources within the project APE? If so, it would be helpful for readers concerned about paleontological resources if this were more clearly stated within the DEIS. If not, our office recommends that a professional paleontologist be consulted regarding the presence of paleontological resources within the project APE and the results of their findings be clearly stated and cited within the DEIS.	2. The potential effects to paleontological resources were based on local geology and the potential for the presence of fossil-bearing material. Available published literature for the impact area and geologic formations present also was used in the assessment. A field survey by a paleontologist of the alternative areas of disturbance was not conducted.
3	3. The document states, "If significant fossils are found during construction of any reservoir site COLORADO HISTORICAL SOCIE 1300 BROADWAY DENVER COLORADO 80203 TEL 303/866-3395 FAX 303/866-2711 *www.coloradohistory-oahp.*	3. Reference to the Denver Museum of Science and History was changed to the Museum of Nature and Science in the FEIS. Prior to construction of the Preferred Alternative, a professional paleontologist would be contracted to review the site for the potential of discovering fossils. If the likelihood for finding important fossils is high, a paleontologist would then provide orientation to construction personnel on where fossils might be found and how to recognize them. Denver Museum paleontologists would be notified prior to construction and should fossils be discovered, they would be contacted to assess the significance of the find. This mitigation was added to Geology, Section 3.14.4 of the FEIS.

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3	or facilities, paleontologists with the Denver Museum of Science and History would be notified." First, this reference should be globally changed to the Denver Museum of Nature and Science. Second, what type of training has or will be provided to construction personnel regarding the identification of "significant fossils" or any paleontological resources, if encountered during construction? Will any portions of the proposed construction be monitored by a professional paleontologist? Finally, have paleontologists at the Denver Museum of Nature and Science been contacted regarding participation in this project and their presumed role if paleontological resources are discovered during construction activities?	4. The first paragraph under Section 3.20.2.3 and the paragraph under Section 3.20.3 of the FEIS were rewritten to be more specific as to the types of anticipated direct, indirect, and cumulative effects on cultural resources. In the paragraph under Section 3.20.3, the reader is referred to Section 2.8.2 of the FEIS for a description of reasonably foreseeable actions.
4	4. In general, our office finds the discussions of indirect and cumulative effects to cultural resources to be vague with little detail. What types of effects have the potential to cumulatively add to the loss of cultural resource values over time? What types of measures can be taken to mitigate both short- and long-term indirect effects, as well as long-term (reasonably foreseeable) cumulative effects to cultural resources?	5. In a meeting with the SHPO on January 24, 2007, Reclamation reviewed the level of effort employed in the identification of historic properties for the WGFP EIS alternatives. The SHPO did not object to these procedures. In addition, Reclamation states in the EIS in Section 3.20.4 that an MOA or PA, as appropriate, would be drafted that stipulates compliance under Section 106 for the selected alternative.
5	5. Based on our review of the documentation provided, it appears that the alternative with the least impact on known cultural resources is the Proposed Action and the alternative with the greatest impact on known cultural resources is Alternative 3. However, as much of the project area remains unsurveyed for cultural resources, an important step in the process is identifying the presence and nature of currently unknown cultural resources within the project's APE. At present, the full extent and nature of cultural resources located within the WGFP APE and the effect the proposed alternatives on them remains unknown. In order to fully evaluate the potential impact that each alternative may have on cultural resources, our office recommends that additional survey be conducted.	
6	6. Our office recommends that special attention be paid to the project's potential impacts on the Colorado-Big Thompson Historic District and any properties considered to be contributing thereto.	6. The following sentence was added after sentence two of paragraph one under Section 3.20.4.1: "Special attention would be paid to the project's potential impacts on the C-BT Project Historic District (5BL7953, 5GA2409, and 5LR9611) and any properties considered to be contributing thereto."
	Specific Comments:	
7	1. Page 3-201, Section 3.14.4, 1st paragraph (left column), last sentence: The "Denver Museum of Science and History" should be "The Denver Museum of Nature and Science."	7. The museum name was corrected in Section 3.14.4 of the FEIS.
8	2. Page 3-293, Section 3.25.8, 1st paragraph (right column), last sentence: The "Denver Museum of Science and History" should be "The Denver Museum of Nature and Science."	8. The museum name was corrected in Section 3.25.8 of the FEIS.
9	3. Page 3-254, Section 3.20.1.3, 1st paragraph (right column), last sentence: "In addition to this file search data, Reclamation provided information on two additional studies that are not officially on file with the OAHP." Our office would greatly appreciate having copies of these two referenced studies.	9. Since there was no report for a site reported by Joe Ben Wheat (5LR57) and the report by Jonathan Kent (Metropolitan State College n.d.) has not been completed, they cannot be provided to the OAHP by Reclamation. In addition to these two studies, Reclamation is currently reviewing the report by Kester-Tallman and Brant (2008) and will be in consultation with the SHPO regarding this report and its findings within the near future. The first paragraph under Section 3.20.1.3 of the FEIS was revised to indicate that in addition to the file search data, Reclamation provided information on three studies that are not officially on file with the OAHP. The first study included a prehistoric lithic scatter (5LR57) recorded by Joe Ben Wheat in 1953. The second study was conducted by Jonathan Kent of Metropolitan State College and covered four years of field school in the Carter Lake and Chimney Hollow locales. A report on the fieldwork conducted in 1993 (Kent 1994) details findings to the east at the Carter
10	4. Page 3-255, Section 3.20.1.3, 1st full paragraph on the page (left column), 2nd sentence: The sentence may be better stated as follows: The Chimney Hollow Reservoir footprint (i.e., study area) was surveyed at the Class III level and resources were fully documented and evaluated for NRHP significance. Survey has not yet been conducted for the entire Chimney Hollow Reservoir APE, or for any associated facilities.	
11	5. Page 3-255, Section 3.20.1.3, 7th paragraph (first paragraph of right column), 1st sentence: Remove "Regardless of their level of significance," and begin sentence, "Properties listed in or eligible for…"	
12	6. Page 3-256, Section 3.20.1.5, 1st paragraph (right column): Before discussing known cultural resources under each reservoir component, it may facilitate reader comprehension if a	

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		Lake Reservoir; these resources are within the Chimney Hollow APE but outside of the reservoir footprint. The final report titled the "Carter Lake Archaeological Project Final Report" will include Kent's work in the Carter Lake and Chimney Hollow areas conducted during 1994, 1995, and 1996 field seasons; it is in progress. Kent located 23 sites and 43 isolates within the Chimney Hollow APE. Cultural Resource Analysts, Inc. completed a third study in 2007 (Kester-Tallman and Brant 2008) when Carter Lake and Flatiron Reservoirs were drained. Eight sites and six isolates were recorded within the Chimney Hollow APE, while two sites were reevaluated. 10. The discussion in Section 3.20.1.3 of the FEIS was revised to indicate the Chimney Hollow Reservoir footprint, and all but 17.2 acres within the associated facilities (i.e., study area) were surveyed at a Class III level and resources were fully documented and evaluated for NRHP significance (WCRM 2004a, 2004b, 2010). Access to 17.2 acres located on two private parcels was denied within the Chimney Hollow Reservoir facilities, and it is known that at least one resource, a segment of the Estes to Lyons Tap Transmission Line (5LR9454), crosses one of these parcels and will need to be recorded, evaluated, and possibly treated in the future. 11. Text in FEIS was edited to remove "Regardless of their level of significance," and the sentence now begins with, "Properties listed in or eligible for…"

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12	distinction is made between the "study area," which appears to be the project footprint or area of direct effect, and the APE, which includes a buffer around the areas proposed for direct disturbance. A definition of each of these terms here may be useful.	12. Although both of the terms "APE" and "study area" have previously been defined in Section 3.20.1.2, a text box has been placed in Section 3.20.1.3 immediately following the paragraph where these terms are defined.
13	7. Page 3-256, Section 3.20.1.5, 1st paragraph (right column), 3rd sentence: Sentence should read, "There are no known sites within the reservoir study area, but three cultural resources…"	13. The sentence in Section 3.20.1.5 of the FEIS was changed to read as follows: "There are no known sites within the reservoir study area, but three cultural resources…"
14	8. Page 3.257, Section 3.20.1.6, 2nd paragraph (right column), 1st sentence: Has "C-BT" been previously defined (acronym written out)? If not, please define here. All subsequent occurrences should use "C-BT."	14. "C-BT" is previously defined under Section 3.20.1.3. No further action is required.
15	9. Page 3-262, Section 3.20.2.6, 1st paragraph (left column): Although it is stated that, "The effects associated with construction of a 70,000 AF Chimney Hollow would be the same as described for the proposed action," it is unclear why the effects would not be reduced since Alternative 3 consists of a 70,000 AF Chimney Hollow reservoir, and the Proposed Action (Alternative 2) consists of a 90,000 AF Chimney Hollow reservoir.	15. The sentence in Section 3.20.2.6 of the FEIS was replaced to indicate that there are two unevaluated cultural resources (5LR10397 and 5LR10420) between the 70,000 AF Chimney Hollow Reservoir boundary of Alternative 3 and the 90,000 AF Chimney Hollow Reservoir boundary of the Proposed Action (Alternative 2). Therefore, the effects associated with the construction of a 70,000 AF Chimney Hollow Reservoir would affect 14 eligible or unevaluated sites rather than 16 as described for the Proposed Action.
16	10. Page 3-262, Section 3.20.2.7, 1st paragraph (right column): Although it is stated that, "The effects associated with construction of a 70,000 AF Chimney Hollow would be the same as described for the proposed action," it is unclear why the effects would not be reduced since Alternative 4 consists of a 70,000 AF Chimney Hollow reservoir, and the Proposed Action (Alternative 2) consists of a 90,000 AF Chimney Hollow reservoir.	16. The sentence in Section 3.20.2.7 of the FEIS was replaced to indicate that there are two unevaluated cultural resources (5LR10397 and 5LR10420) located between the 70,000 AF Chimney Hollow Reservoir boundary of Alternative 4 and the 90,000 AF Chimney Hollow Reservoir boundary of the Proposed Action (Alternative 2). Therefore, the effects associated with the construction of a 70,000 AF Chimney Hollow Reservoir would affect 14 eligible or unevaluated sites rather than 16 as described for the Proposed Action.
17	11. Page 3-263, Section 3.20.2.8, 2nd full paragraph (left column): Although it is stated that, "The effects associated with a 30,000 AF Rockwell Reservoir would be the same as Alternative 4," it is unclear why the effects would not be increased since Alternative 5 consists of a 30,000 AF Rockwell Reservoir, and Alternative 4 consists of a 20,000 AF Rockwell Reservoir.	17. The sentence in Section 3.20.2.8 of the FEIS was replaced to indicate that there are no known eligible or unevaluated cultural resources located between the 20,000 AF Rockwell Reservoir boundary of Alternative 4 and the 30,000 AF Rockwell Reservoir boundary of Alternative 5. Therefore, the effects associated with the construction of a 20,000 AF Rockwell Reservoir would be the same as described for the 30,000 AF Rockwell Reservoir with regard to known eligible or unevaluated cultural resources.
18	12. Page 3-263, Section 3.20.3, 1st paragraph (left column): The discussion on cumulative effects to cultural resources is vague and insufficient. What types of effects have the potential to cumulatively add to the loss of cultural resource values over time? What types of measures can be taken to mitigate long-term (reasonably foreseeable) cumulative effects to cultural resources?	18. Section 3.20.3 of the FEIS was revised to indicate that both water-based and land-based actions could result in cumulative effects; a description of reasonably foreseeable actions considered in this FEIS is presented in Section 2.8.2.
19	13. Page 3-263, Section 3.20.4 (All): It is unclear why proposed mitigation only addresses mitigation for sites located within the project study area (i.e., footprint of direct impact) and not for those located within the APE (i.e., beyond the footprint of direct impact). Possible mitigation of direct, indirect, and cumulative impacts to cultural resources within the project APE should be addressed in this section.	
20	14. Page 3-263, Section 3.20.4, 2nd paragraph (right column), 1st sentence: Our office recommends that a timeframe be provided for when the county sheriff and/or coroner will be contacted (e.g., 24 hours, 48 hours, etc.).	
21	15. Page 3-263, Section 3.20.4, 2nd paragraph (right column): Our office recommends that Tribes be contacted and consulted prior to exhuming any human remains, and not afterward as is presently stated.	
22	16. Page 3-264, Section 3.20.4, 1st full paragraph (left column), 1st sentence: This should read "The Carter Lake Historic Area (5LR1363)…" not "District."	
23	17. Page 3-264, Section 3.20.4, 3rd full paragraph (left column): This paragraph suggests that site 5LR10410 will be determined officially not eligible, and as such, no further work would be required. However, what if the site is determined officially eligible?	
24	18. Page 3-264, Section 3.20.4, 4th full paragraph (left column): As a Discovery Plan has already been discussed at the beginning of this section, it is possible that this paragraph is not necessary as it repeats what has already been stated.	

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		19. The first four paragraphs under Section 3.20.4 have been revised and replaced with the following: Specific mitigation measures for the direct, indirect, and cumulative impacts of the Preferred Alternative would be developed by means of a Memorandum of Agreement (MOA) or Programmatic Agreement (PA), as appropriate, in compliance with Section 106 of the NHPA. The agreement would be developed between Reclamation, the ACHP, the Colorado SHPO, and, if necessary, Larimer County to specify: • the measures to be taken with regard to identification and evaluation of historic properties; • the components of a treatment plan and subsequent treatment report to resolve adverse effects; • any modifications to the project design; • pre-construction meeting(s) between Reclamation and the construction contractor with a cultural resource contractor present; • the measures to be taken in the event that there are unanticipated discoveries of historic properties; • the measures to be taken in the event that there are unanticipated discoveries of human remains; • a curation facility; and • any other terms and conditions. Special attention would be paid to the project's potential impacts on sites within the C-BT Project Historic District (5BL7953, 5GA2409, and 5LR9611) and any properties considered to be contributing thereto. All alternatives would require ongoing consultation with Native American Tribes and the public. Mitigation measures for known historic properties within the APE are discussed below by alternative.

Com-ment	Letter #131	Response
25	19. Page 3-264, Section 3.20.4, 6th full paragraph (right column), 1st sentence: This sentence cites 10 previously recorded cultural resources. However, in previous discussions of the study area and APE for the Jasper East reservoir, 45 known cultural resources are located within the APE, and eight known cultural resources are located within the study area. It is unclear what the "10 previously recorded cultural resources" is referencing. Our office looks forward to continued consultation regarding "measures that might avoid, minimize or mitigate any adverse effects of the undertaking on historic properties," as stipulated in 36 CFR 800.8(c)(1)(v) and to the possible development of a Memorandum of Agreement (MOA) that stipulates compliance under Section 106 for the selected alternative and for the mitigation of adversely affected cultural resources. Thank you for the opportunity to comment on this project. If we may be of further assistance please contact Shina duVall, Section 106 Compliance Manager for Archaeology, at (303) 866-4674 or shina.duvall@chs.state.co.us and/or Amy Pallante, Section 106 Compliance Manager for Architecture, at (303) 866-4678. Sincerely, for Edward C. Nichols State Historic Preservation Officer ECN/SAD	Reasonably foreseeable land-based actions have not been identified within the APE for expansion of Ralph Price Reservoir under the No Action Alternative; however, a variety of new land developments near the Jasper East, Rockwell, Chimney Hollow, and Dry Creek reservoir sites could result in cumulative effects to eligible or potentially eligible cultural resources within the reservoir APEs. In addition, Larimer County Parks and Open Lands have acquired acreage adjacent to the Chimney Hollow and Dry Creek Reservoir APEs for future recreation use. Any future impacts anticipated from trail development, facility construction, or other ground-disturbing activities related to the WGFP would be addressed by Reclamation in a MOA/PA." 20. Section 3.20.4 of the FEIS was rewritten; see response to Comment No. 19. These procedures would be addressed in a MOA/PA when it is developed. 21. Section 3.20.4 of the FEIS was rewritten; see response to Comment No. 19. These procedures would be addressed in a MOA/PA when it is developed. 22. This sentence is now in Section 3.20.1.7 of the FEIS was changed to read: "Carter Lake Historic Area (5LR1363)…" 23. Since the initial review of the DEIS by the SHPO, site 5LR10410 has been officially determined not eligible. Therefore, discussion of this site has been removed since it is no longer eligible or potentially eligible. 24. This paragraph in Section 3.20.4 of the FEIS was deleted. 25. In Section 3.20.4.5 of the FEIS , the three paragraphs under the "Jasper East" heading have been condensed and revised to indicate Reclamation, in consultation with the SHPO, would determine the level of survey needed for areas that would be affected (directly, indirectly, or cumulatively) by project construction; it is likely that six previously recorded sites within the reservoir study area would need to be reevaluated, and in some cases, rerecorded before NRHP assessments could be determined. A seventh site (5GA151), a prehistoric quarry, was officially determined eligible on November 8, 1981. After NRHP determinations for the six sites lacking official evaluations have been made by Reclamation in consultation with the SHPO and, if necessary, the ACHP, appropriate mitigation measures would be developed for 5GA151 and any other eligible sites. Sites officially determined not eligible would require no further work.

Comment	Letter #1111	Response
1	Pitkin County 530 E. Main Street • Aspen, Colorado 8 OFFICIAL FILE COPY RECLAMATION Date DEC 29 2008 Code 1340 Surname Tully Date 12/29/08 Copy to 1000, 1005, 1004 December 23, 2008 Will Tully Bureau of Reclamation 11056 West County Road 18 E Loveland, CO 80537 RE: Windy Gap Firming Project Draft Environmental Impact Statement Public Comment Dear Mr. Tully: This letter is being submitted as part of the Bureau's request for public comment to the draft Environmental Impact Statement for the Windy Gap Firming Project. This letter reflects the position of the Board of County Commissioners of Pitkin County, Colorado. It is the position of the Pitkin County Board of County Commissioners that the draft Environmental Impact Statement ("DEIS") is an incomplete and therefore, inconclusive analysis and review of the effects of the proposed diversion, particularly for the basin of origin but also for the entire west slope of Colorado as well. Failure to completely analyze the impacts of this diversion result in a study which inadequately explores alternatives to the stated problem, particularly alternatives that do not precipitate the harm to west slope communities the proposed diversion project would inflict.	1. The DEIS was prepared in accordance with the requirements of the Council of Environmental Quality regulations implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended, and the Bureau of Reclamation NEPA Handbook.
2	Of particular concern to Pitkin County is the obligation of west slope communities to fill the commitment for 10825 water. Currently, releases from Ruedi Reservoir are considered by some to be the best method to satisfy this demand. However, if the Windy Gap Firming Project proceeds, the potential contribution of Granby to this 10825 solution may be lessened causing greater demand on Ruedi Reservoir and consequently importing to Pitkin County many of the negative environmental, economic and recreational impacts felt in Grand County. Reliance on stream modeling which does not include the effect of a Shoshone call or its curtailment or actual river conditions against which to measure the full effect of a Windy Gap diversion, may very well seriously undermine the west slope's 10825 obligation.	2. Reclamation released the *Colorado Water Users' Commitment to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River Environmental Assessment* on September 23, 2011. This EA addresses the 10825 AF flow releases for Colorado River endangered fish species. The proposed action is to split releases between Granby Reservoir and Ruedi Reservoir. The WGFP would not impact the flows available for the 10825 project. The Shoshone call reduction is analyzed as a reasonably foreseeable action in Section 3.5.3.2 of the DEIS under the subsection Colorado River, and in Section 8.4.2.6 of the WGFP Water Resources Technical Report. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. In 2003, Windy Gap diverted approximately 7,850 AF out of a total diversion of 64,200 AF due to the Shoshone call reduction. Windy Gap diversions were high in 2003, primarily because conditions in the Upper Colorado River were not dry as they were initially forecasted to be when the relaxation of the Shoshone call was invoked. A significant snow storm in March and late spring rainfall resulted in higher flows than forecasted. As a result, Windy Gap benefitted more from the high flow conditions as opposed to the relaxation of the call. Windy Gap did not benefit from the Shoshone call reduction in 2004 because other factors, including instream flow requirements below Windy Gap, constrained diversions. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the WGFP would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked. Additional discussion of the Shoshone call reduction was added to Section 3.5.3.2 of the FEIS under the subsection Colorado River.
3	As is too often the case in diversion projects, water conservation as an alternative or at least a mitigation to dampen future demand is dismissed. The Windy Gap Firming Project DEIS is no exception. This represents an outdated approach which encourages a pattern of water consumption that cannot be sustained without catastrophic effects in basins of origin. ENV-6.00 WGFP 245 Administration Suite 301 (970) 920-5200 fax 920-5198 County Commissioners Suite 301 (970) 920-5150 County Attorney Suite 302 (970) 920-5190 Finance and Use Tax Suite 201 (970) 920-5220 fax 920-5230	

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4	The economic health of west slope communities is dependent upon healthy river flows. Kayaking and rafting, as the only highlighted recreational activities in and on the Colorado River recognized in the DEIS, is not an accurate portrayal of the west slope economic dependency on viable river flows. Not only are all recreational activities affected by the Windy Gap Firming Project, but more fundamentally as the overall tourist economy becomes impacted, sales tax revenues and property values will decline. These potential impacts are not addressed in the DEIS.	3. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Six of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Appropriate mitigation measures have been incorporated into the FEIS to assure that the participants conserve water made available to them as a result of the WGFP.
5	The DEIS should not be accepted without a requirement to implement conservation and re-use measures to the maximum extent possible by the front range recipients of the diverted water.	4. The recreation and socioeconomic analyses focus on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process and are the most likely to be affected by hydrological changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report, and in the Recreation section of the FEIS under Effects Common to All Alternatives.
6	The ultimate EIS should at a minimum address all recreational activities associated with the Colorado River, including particular attention to the existing gold medal fishery and the potential designation of the Colorado River as a wild and scenic river.	Potential effects of hydrological changes on commercial and private fishing opportunities are further described in the FEIS. However, the Aquatic Resources analysis determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success.
7	The EIS must completely discuss the recreational, scenic and ecological importance of the Colorado River to the overall tourist and recreational economies with attention to the impact of the economic sectors on the overall economic health and sustained property values of the west slope communities. This discussion to be meaningful, must relate these economic conditions to not only minimum river flows, but such flows needed to sustain a vital west slope economy.	The direct and secondary economic impacts of boating and camping activities are described in detail in the Socioeconomics section. Property values are not expected to be affected. Impacts on property tax revenues from land acquisitions for reservoirs have been added to the FEIS.
8	Relating river flows to west slope community health needs to be conducted with improved stream modeling and past stream flow data. The modeling system should relate to daily flows not monthly flows and include our most recent drought experiences of 2002 and 2003. Further, any modeling should relate to past actual Windy Gap diversions comparing these to the proposed annual yield of 30,000 acre feet.	Mitigation measures described in the FEIS, as summarized in Section 3.25, include modified prepositioning that maintains higher water levels in Granby Reservoir; nutrient reduction measures; and curtailed WGFP diversions when Colorado River temperatures exceed standards and for the annual Gore Race, if flows are below 1,250 cfs. These, and other mitigation measures, would help minimize socioeconomic impacts.
9	Finally, the omission of a full discussion of the implications of Senate Document 80 should be remedied. Senate Document 80 is the organic law for the C-BT Project and must be reconciled with any deleterious effects to the Colorado River fisheries caused by the Windy Gap diversion. The DEIS must discuss the compliance or absence of compliance with Senate Document 80 or alternatively discuss the breadth of change needed to the legislation and the presence or absence of support for such amendments. Pitkin County representatives are available to discuss these issues further if it would be helpful. BOARD OF COUNTY COMMISSIONERS OF PITKIN COUNTY Sincerely, Rachel Richards cc: NWCCOG 12/23/03	5. See response to Comment No. 3. Maintenance of a state-approved conservation plan would be condition of approval in any contract or agreement with Reclamation. 6. See response to Comment No. 4 discussing mitigation that benefits recreation. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for each river segment. This process is described in the Recreation section. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, no determination of effects on the suitability of these reaches for Wild and Scenic designation can be made until the BLM's evaluation is complete.

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		7. See response to Comment No. 4. 8. The comment has three parts and the response is organized accordingly. a. The modeling should be conducted on a daily basis. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data that were developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data were used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D Model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts from the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for nondrought conditions.

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		b. The model should be extended to include the more recent drought of 2002 and 2003. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002, and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available, as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years.

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		c. The modeling should relate to past Windy Gap diversions and use those values for comparison purposes. It is appropriate to assess effects due to the EIS alternatives based on a comparison against modeled existing conditions as opposed to historical conditions since the hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations, as discussed in Section 7.1 of the WGFP Water Resources Technical Report (December 2007). Hydrologic output associated with the Preferred Alternative is not compared with historical hydrology for the following reasons: • Demands have changed considerably over the course of the study period, • Certain facilities and reservoir were not in operation for the entire study period, and • River administration and project operations have changed over the study period. 9. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

Com-ment	Letter #1145	Response
1	WGFP 1145 ST VRAIN & LEFT HAND WATER CONSERVANCY DISTRICT OFFICIAL FILE COPY RECLAMATION SEP 18 2008 Date Tully 1340 cont 9/22 September 16, 2008 Mr. Will Tully Bureau of Reclamation 11056 West County Road 18E Loveland, CO 80537 Dear Mr. Tully: At its September meeting, the Board of Directors of the St. Vrain & Left Hand Water Conservancy District (the "St. Vrain District") voted to support Alternative 2 (the "Proposed Action") for the Windy Gap Firming Project. The Proposed Action includes the construction of the 90,000 acre-foot Chimney Hollow Reservoir, which offers the ability to store Windy Gap water or preposition C-BT water in the new reservoir. See ES-6. The St. Vrain District's support of the Proposed Action is based, in part, on the projected increase in Windy Gap firm yield from zero under existing conditions to about 26,000 acre-feet per year. See ES-10. The additional firm yield would collectively contribute about ten percent of the projected 2050 demand for the East Slope project participants and significantly lessen the projected 2050 supply deficit for those participants. See ES-3. The Proposed Action, in contrast to Alternatives 3, 4 and 5, requires a single new structure which would reduce the complexity of the project. Chimney Hollow Reservoir's proximity to the existing East Slope C-BT facilities makes the Proposed Alternative very appealing. The St. Vrain District expressed particular concern with the "no action" alternative, which it believes would require the thirteen East Slope project participants to each seek individual and more expensive options to firm up their water supplies. Such solutions would likely include the continued dry-up of a significant portion of the remaining agricultural lands within the boundaries of the St. Vrain District. The St. Vrain District also notes that, under the "no action" alternative, Windy Gap diversions will continue to increase because of the projected increased demand even though the firm yield available for the East Slope project participants will not. See ES-5. For these reasons, the St. Vrain District supports the Windy Gap Firming Project. Official File Copy File Code ENV-6.00 WGFP Project 245 Folder I.D. Control No. PRESIDENT Vernon E. Peppler Director at Large VICE PRESIDENT David Macy Director at Large SECRETARY Patricia Jones District 4 TREASURER Harold Nelson District 1 Dennis Yanchunas District 7 Ronald Sutherland District 5 Gordon Kennedy District 3 Robert Brand District 2 Glenn Patterson District 6 EXECUTIVE DIRECTOR Les Williams ADMINISTRATIVE ASSISTANT Cynthia Einspahr SECRETARY Lee Bauer LEGAL COUNSEL Bernard Lyons Gaddis & Kahn CONSULTING ENGINEER Deere & Ault Consultants, Inc. Mark McLean 9595 Nelson Road, Suite 203 Longmont, Colorado 80501 (303) 772-406	1. Thank you for your comment.

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	Page 2 Mr. Will Tully Bureau of Reclamation Sincerely, Vernon Peppler Vernon Peppler, President St. Vrain & Left Hand Water Conservancy District cc: Board of Directors, St. Vrain & Left Hand Water Conservancy District Eric Wilkinson, Northern Colorado Water Conservancy District	

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United States Department of Agriculture
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File Code: 1950-4
Date: DEC 29 2008

Mr. Will Tully
United States Bureau of Reclamation, Eastern Colorado
Area Office
11056 W. County Road 18E
Loveland, CO 80537-9711

Dear Mr. Tully,

The Sulphur Ranger District of the Arapaho-Roosevelt National Forest has reviewed the Draft Environmental Impact (DEIS) for the Windy Gap Firming project and provides comments that are attached. If you have any questions regarding the comments, please contact Kevin Bayer of my staff at (970) 887-4141. Thank you for the opportunity to review the DEIS regarding this significant project.

OFFICIAL FILE COPY
RECLAMATION
DEC 30 2008
Date

Code	Surname	Date
1340	Tully	1/7/09

Copy to 1004

Sincerely,

CRAIG A. MAGWIRE
District Ranger

Official File Copy
File Code ENV-6.00 WGFP
Project 245
Contract No.

Caring for the Land and Serving People

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1 2 3	**Sulphur Ranger District's Detailed Comments** for the Windy Gap Firming project DEIS Introduction Arapaho National Forest (Forest Service) comments on the Windy Gap Firming project (WGFP) Draft Environmental Impact Statement (DEIS) will focus on the analysis of impacts related to recreation and hydrology in the Arapaho National Recreation Area (ANRA). The 1997 revision of the Land and Resource Management Plan for the Arapaho–Roosevelt National Forests (Forest Plan) and Public Law 95-450, the "Indian Peaks Wilderness Area, the Arapaho National Recreation Area and the Oregon Islands Wilderness Area act" are key documents forming the basis for Forest Service comments. Forest Service comments are organized following the DEIS structure. In 1978, Public Law 95-450 created the ANRA within the Arapaho National Forest and Colorado-Big Thompson project (C-BT) specifically to "preserve and protect the natural, scenic, pastoral and wildlife resources of the area and the recreational opportunities provided". The ANRA is administered by the Secretary of Agriculture in accordance with laws and regulations applicable to national forests which includes the Clean Water Act and therefore State of Colorado water quality standards. The ANRA is to be administered in a manner "as will best provide for…….the management of water quality in the recreation area consistent with needed water supply…". National Recreation Areas are intended to be showcases for excellence in outdoor recreation and enjoyment as well as an environmental and economic asset to the state and local communities where they are located. The ANRA was created specifically to provide outdoor recreation opportunities around the five reservoirs within its boundaries for public enjoyment. Comments on DEIS 1.10 The Decision Process To inform the BOR decision making, explain how the WGFP proposal supports the 5 primary purposes in the "manner of operations" of the C-BT advanced in US Senate Document 80. In section 1.10.1 "Reclamation Decisions", please discuss how the WGFP proposal addresses the congressional intent regarding the purposes and administration of the ANRA in Public Law 95-450. As described in the DEIS, this project could lead to listing either Shadow Mountain or Granby Reservoirs on the States list of impaired waters (303(d) list). The BOR should have mitigations identified that would prevent more existing and future violations of State water quality standards in the reservoirs and associated streams. 2.2 Alternatives There does not appear to be a true "no action" alternative identified in the DEIS The "no action" alternative should be synonymous with existing conditions and represent the baseline for the	1. The proposed project is not required to support the purposes for which the C-BT was constructed but it must not impair the project from being operated to meet those purposes. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 2. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River. 3. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connections to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For WG and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, #3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demands increase within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP.

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3	remainder of the analysis of action alternatives. No action means either: 1) continue present management but do not do the proposed project or 2) do not do anything at all. As it is written, the "no action" alternative is an activity (diverting and storing more water on average in an enlarged reservoir) that is a result of not building any new storage reservoirs. So, this alternative is neither the continuation of present management nor a complete lack of action. Perhaps NCWCD should develop another action alternative such as "divert an additional 9000 acre-feet without building new storage" and replace the existing alternative 1 with a true no action alternative.	The City of Longmont would consider enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is a reasonable action for the City of Longmont, and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts included under the No Action alternative entail increased Windy Gap deliveries to participants, which can currently be done without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative or that the No Action alternative should be no diversions.
4	3.19 Recreation 3.19.2.4 West Slope Reservoir Recreation Willow Creek Reservoir public access- County Road 40 relocation If Jasper East Reservoir is constructed, retain adequate public access to Willow Creek Reservoir for recreation such as boating and camping. Access must be suitable for recreational vehicles and vehicles towing trailers. The DEIS should adequately describe the alternate transportation system for accessing Willow Creek Reservoir during and after Jasper East Reservoir construction.	4. If Jasper Creek Reservoir is built, access to Willow Creek Reservoir for recreation vehicles would be maintained. Specific details on how that would be accomplished would be developed during final design and would likely depend on construction staging and sequencing.
5	3.5 Surface Water Hydrology 3.5.1 Affected Environment The "Affected environment" section should include the reach of the Colorado River between Shadow Mountain Reservoir and Granby Reservoir as well as the Fraser River since the Fraser River is the primary source of water for Windy Gap diversions and the Fraser River is included in cumulative effects. For example, the WGFP could affect residents of the Fraser Valley by compelling wastewater dischargers to upgrade facilities at residents expense. Actions affecting water quality in the Fraser Valley will be translated into the ANRA reservoirs through Windy Gap pumping.	5. The study area includes the reach of the Colorado River between Shadow Mountain Reservoir and Granby Reservoir. Daily flow data were generated for this reach for each of the alternatives and was used in the water quality analysis for the Three Lakes system. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line and, therefore, includes the Fraser River. There would be no change in Fraser River flow due to the WGFP alternatives. Changes in streamflows in the Fraser River due to municipal growth in that basin and Denver Water's Moffat Project were considered in the cumulative effects analysis.
6	The environmental analysis should describe and explain how the "holes", or highly depleted reaches of the Fraser and Colorado Rivers developed. Mitigation was mentioned for the Colorado River diversions (increasing bypass flow from Windy Gap) but the analysis should explore options for repairing the Fraser River. For example, there is no means to replace water diverted to the Front Range from the Fraser River (other than Denver Water Department Williams Fork diversions) since the Ranch Creek and Idlewild reservoir sites proved infeasible and no other reservoir was constructed. The hole in the Fraser River may exacerbate water quality impacts from Windy Gap diversions to reservoirs within the ANRA.	Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and Colorado River.
7	3.5.2 Environmental Effects Direct/Indirect The "Environmental effects" discussion should include the reach of the Colorado River between Shadow Mountain Reservoir and Granby Reservoir. Since water quality and quantity in ANRA reservoirs would be affected, it follows that this reach of the Colorado may experience changes in flow and water quality. The analysis should also include a discussion of how *Didymosphenia*	6. Highly depleted reaches of the Fraser River are not a result of the existing Windy Gap Project nor would they be affected by the WGFP alternatives. Under the "Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project" (Azure Agreement) dated April 30, 1980 and the supplement to that agreement dated March 25, 1985, the Windy Gap Project must subordinate its water rights to all Colorado River and Fraser River basin irrigation, domestic, and municipal uses upstream of the Windy Gap reservoir site. Therefore, there would be no change in streamflows in the Fraser River due to the WGFP alternatives. The WG project may not call out more junior water rights in the Fraser River basin.

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7	*geminata* (didymo) in this reach would be affected by increased nutrient loading to ANRA reservoirs.	Changes in streamflows in the Fraser River due to municipal growth in that basin and Denver Water's Moffat Project were considered in the cumulative effects analysis. Anticipated water quality effects are the result of nutrient transfers into the Three Lakes system by water pumped at the Windy gap diversion. Proposed nutrient mitigation is discussed in responses to other comments.
8	The west slope effects analysis period of record should be extended to include the year 2002. Since 2002 was a year with lower streamflows than any year during the 1950-1996 period of record used in the analysis, 2002 could be used as an analog for climate change or Moffat Firming. While including 2002 may not change conclusions regarding streamflow below Windy Gap, it may produce more accurate or realistic conclusions regarding water quality in the Colorado River and ANRA reservoirs.	7. The study area does include the reach of the Colorado River between Shadow Mountain Reservoir and Granby Reservoir. Daily flow data were generated for this reach for each of the alternatives and was used in the water quality analysis for the Three Lakes system.
9	3.5.3 Cumulative Effects Pg 3-115: The assumption that the Fraser Valley wastewater treatment plants (WWTP's) would upgrade their existing facilities (implement advanced WWT) may lead to false conclusions regarding water quality impacts, especially for phosphorus. This assumption results in analysis of the best case scenario in terms of Fraser River water quality. If assumptions regarding Fraser water quality are flawed (assume higher water quality than would exist in the future), then the effects analysis for water quality impacts to the ANRA reservoirs and the Colorado River is too optimistic. The analysis should include other scenarios such as water quality impacts under the existing level of WW treatment with Moffat Firming and increased Grand County demand on the Fraser River. For example, the Fraser Valley Combined WWTP just came online in December 2005. It is unlikely that the Combined WWTP would upgrade again in the near future. No mitigation for providing advanced WWTP in the Fraser Valley is included in the proposal. An explanation of how advanced WWT would be achieved for the six existing WWTP's in the Fraser Valley should be mentioned.	As noted in response to Comment No. 2, proposed nutrient mitigation measures would offset additional WGFP pumping. As a result of this mitigation, there would be no increased nutrient loading to the Three Lakes as a result of the WGFP.
10	The executive summary states that climate change and pine beetle effects are considered in the cumulative effects section but it appears that these issues were dropped (cannot locate a discussion of either). The cumulative effects section for "Surface Water Hydrology" would be a logical section to discuss these issues. The text should discuss climate change and pine beetle effects to water supply in the upper Colorado River basin. As both of these issues are relevant to water supply, the effects should be quantified where possible. One means of quantifying climate change effects is to use the Colorado Water Conservation Board (CWCB) report entitled "Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation".	8. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are as follows: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002 and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002 with or without a WGFP reservoir because Windy Gap diversions would be limited by the amount physically and legally available, as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical with respect to Windy Gap yield than 2002.
	Comments on Recreation Resources Technical report	
11	7.2 West Slope reservoirs Section 7.2.3.1 of the Windy Gap Technical Report on Recreation states that "All of the alternatives including No Action would result in lower lake levels in Granby Reservoir then under existing conditions." Section 7.2.3.1 also states that "Under the Proposed Action, water level decreases of up to 22 feet could occur during consecutive dry years in the peak recreation season compared to existing conditions." Reducing the amount of water in Granby Reservoir will greatly impact the quality and quantity of recreation likely to occur in the area. For example,	The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased

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11	lower water levels would result in less reservoir surface area for the public to engage in fishing and boating activities. Lower water levels would affect the three marinas on Granby Reservoir that operate under a Forest Service permit in a variety of ways. Lower water would force the marinas to keep their docks and mooring buoys further out into the lakebed from the high water line. Usually this would expose marina facilities, and the attached boats, to increased wind and wave action which could result in property damage. The public would have to drive further out onto the lakebed to access the docks, increasing impacts to the lakebed. As the reservoir surface area shrinks, the area required for marina operations accounts for a relatively higher percentage of reservoir surface area, leaving even less surface area for boating and fishing activities. The recreation report should mention the effects to the private boat docks on Granby Reservoir. The Forest Service has approximately 20 dock permits on Granby that allow approximately 54 boats. Lower water levels would force private docks further out onto the lakebed and make these docks more visible from highway 34 . Private boat dock owners would need to travel further across the lakebed to use and maintain their docks. The biggest impacts may be to the owners that have docks in bays. Forest Service regulations state that these docks must be in front of the owners' properties. If the water is lowered enough to make those bays dry then those owners will lose the ability to use their docks.	diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. 9. Please refer to response to Comment No. 2 on proposed mitigation to reduce nutrient loading that would result from additional WGFP pumping into the Three Lakes system.
12	7.2.3.2. Boating The Proposed Action would have serious impacts on the availability of fully functioning boat ramps for the public on Granby reservoir. The report states that in dry years the Proposed Action would lower Granby Reservoir to below the bottom of the Arapaho ramp in May and August. It also estimates that in June and July, the water levels would be at 8,250 feet which is at the bottom of the Arapaho ramp (thus making the ramp ineffective for launching boats). The result is that in dry years, the Arapaho ramp would probably be closed for the entire year. The report also states that "The Proposed Action Alternative could decrease water levels below the Sunset boat ramp in consecutive dry years, which would eliminate boat access from all three boat ramps." Section 7.2.3.3 states that "... in dry years when reservoirs are low, mud flats in portions of the shoreline might affect access." It is clear that the proposed action could seriously compromise fishing access in Granby Reservoir by boat and shore. Since boating and fishing in this reservoir is a major attraction for tourism in this area, the proposed action poses a major economic impact to the local economy in drier years.	10. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions, was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS. A discussion of pine beetles also is included in Section 2.8.2 of the FEIS. The implications of pine beetle-killed trees would be similar for all alternatives, and because evaluating the effects would require a substantial number of assumptions on likely conditions in the watershed, a detailed analysis of the range of potential effects of this reasonably foreseeable action was not conducted in the EIS. 11. As a mitigation measure, the Subdistrict has proposed to modify prepositioning operations to reduce Granby Reservoir water level fluctuations. In any year when Granby Reservoir is projected to fall below an elevation of 8,250 feet, modified prepositioning, which reduces the delivery of C-BT water from Granby Reservoir to Chimney Hollow Reservoir, would be implemented to maintain higher water levels in Granby Reservoir. Additional discussions of the effects of modified prepositioning are found in Section 3.5.4 of the FEIS. Additional descriptions of private marinas and boat docks at Granby Reservoir, as well as potential impacts to those facilities, has been added to the FEIS. Additional information has been added to the FEIS to better correlate severe drawdowns during consecutive dry years with reservoir surface area. Dry years and low water levels have occurred in the past and will continue to occur in the future. 12. In average years, all boat ramps would remain accessible in the summer under the action alternatives, except for Arapaho Bay in May. In dry years, the Arapaho Bay boat ramp would be affected in August. None of the other boat ramps would be affected during the summer recreation season. It is reasonable to assume that the loss of one boat ramp during 1 month of the 5-month recreation season would

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		not affect recreation use or experiences. The loss of one out of five boat ramps for the entire season would have impacts, but would not eliminate recreation opportunities. To reduce the frequency and amount of fluctuations in Granby Reservoir, as described in the response to Comment No. 11, the Subdistrict proposes modification of prepositioning to maintain higher water levels. As discussed in Section 3.19.4 of the FEIS, modified prepositioning would maintain water levels for access to the Arapahoe Bay boat ramp under most conditions. Drought conditions and delivery of C-BT water could still result in water levels below the 8,250 elevation of the Arapaho Bay boat ramp. The Recreation section in the FEIS has been changed to acknowledge potential impacts on private marinas and boat docks at Granby Reservoir. The FEIS has been revised to clarify boat ramp access during dry years, and to better describe the frequency and impacts of consecutive dry years on boating opportunities for both existing conditions and the Proposed Action.

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1 2	WGFP 1120 **OFFICE OF THE COUNTY MANAGER** 970-453-2561 fax 970-453-3535 Post Office Box 68 208 East Lincoln Avenue Breckenridge, Colorado 80424 December 29, 2008 Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 Mr. Tully: Summit County Government, the Town of Frisco, the Town of Breckenridge, and the Town of Dillon, collectively submit following comments in response to the Windy Gap Firming Project (WGFP) Draft Environmental Impact Statement (DEIS) released on August 29, 2008. Projects such as the Windy Gap Firming Project and the Moffat Expansion Project impact the entire Upper Colorado River watershed. Large transmountain diversion projects such as these need to be evaluated more holistically taking into account the intricate water systems that link our watersheds together in the Upper Colorado. Summit County historically has worked with Eagle, Grand County, and Pitkin County, as well as, municipalities and water and sanitation districts in the headwaters of the Colorado River, to address impacts of water projects that occur across county lines. Specific concerns Summit County and the Towns of Frisco, Breckenridge and Dillon have with the WGFP DEIS are 1.) mitigation outlined in the DEIS is inadequate and vague at best, 2.) an attempt to assess cumulative impacts merely outlines reduced flows from past and present projects, but fails to really recognize effects of those reduced flows on aquatic life and stream health, 3.) the modeling is flawed; specifically it was not extended to include potential areas of impacts further down below the Kremmling gage, and water quality impacts are inaccurate, and 4.) socioeconomic and recreational impacts are severely understated for a community that relies on water to maintain their quality of life. **Mitigation** First and foremost, we would like to acknowledge that we have been kept appraised of Grand County's (County) efforts to develop a Stream Management Plan (Plan). The County has expended a significant amount of time and money to prepare a scientific study that evaluates	1. The response to these questions are provided below. 2. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included

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		in the SMP. However, mitigation measures included in the FEIS, may help meet some of the goals of the SMP. Additional discussion of the Grand County SMP was added to Section 3.9.1.4 of the FEIS.
2	how water diversion such as WGFP and Moffat Expansion could occur while having very little adverse affect on the water supply, environment and recreation in the Colorado River in Grand County. Such a plan has the potential to create a model that can be used for other transmountain diversions. The Plan needs to be recognized in the DEIS and it needs to be considered as a means of mitigation.	3. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed Project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
3	Additionally, the west slope mitigation proposed is vague and uncertain. The DEIS describes mitigation for the original Windy Gap Project (WG), but fails to analyze additional mitigation needed to address further impacts caused by the WGFP. The DEIS first needs to clearly identify and define the impacts caused by the WGFP [which the analysis and modeling has failed to do], and then require appropriate mitigation measures.	
4	**Cumulative Impacts** While there is an attempt in the DEIS to address impacts from past projects, most of the information addresses streamflows before and after certain projects went online; but the DEIS fails to adequately evaluate the effects of reduced streamflows on such things as aquatic life and the overall health of the streams. The DEIS should provide a clear understanding of all cumulative impacts, not just reduced streamflows.	4. The WGFP FEIS fully considered the cumulative impacts of past, present, and reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of past, present, and future actions in addition to the incremental effect of the alternative actions. Results of the hydrologic analysis were then used to assess water quality, aquatics, and other resources in the same level of detail as the direct impacts of the WGFP. The aquatic resource analysis used the cumulative impacts hydrology as the basis for assessing impacts. Those cumulative impacts are displayed in the cumulative impacts tables in Chapter 3 of the FEIS.
5	The DEIS needs to provide more detailed information on cumulative impacts of all projects effecting Grand County and the Upper Colorado River system. The DEIS fails to provide a full understanding of the history of streamflows and depletions caused by past water diversion projects. The DEIS should include a better understanding particularly of the Colorado Big Thompson (CBT) and WG operations on the west slope. There needs to be a more thorough description of how water is being exchanged, how reservoir evaporation is being accounted and how the system is managed as a whole.	5. The Affected Environment section of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Table 3-20 was added to the FEIS to better illustrate the hydrologic effect of past, present, and reasonably foreseeable actions. Other sections in the EIS provide discussions on existing conditions and status of the various resources. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make a reasonable comparison of the impacts of each of the alternatives.
6	Of particular concern is that the DEIS fails to evaluate impacts further downstream on the Colorado River. From our review, it appears the modeling stops at the Kremmling gage, meaning the DEIS lacks a complete analysis of cumulative impacts affecting the WGFP area. Additional depletions from the Colorado River below the Kremmling gage need to be discussed. One reality is the construction of Wolcott Reservoir and the potential of the endangered species 10,825 water being release from there, rather than reservoirs in Grand County. Has growth in Eagle County been considered or changes to flows in the Eagle River, or the potential of a reduction in Shoshone calls? Again, the river system needs to be evaluated holistically. CBT and other large water projects don't merely impact their immediately surrounding areas.	The discussion of C-BT and Windy Gap operations on the West Slope is sufficiently detailed in the DEIS. In the FEIS, Section 3.5.2.3 provides a discussion of Windy Gap operations and how those operations affect the C-BT Project. Section 3.5.2.5 addresses C-BT and Windy Gap Project operations at major West Slope facilities including the Adams Tunnel, Windy Gap, Granby Reservoir, and the Willow Creek Feeder Canal. A discussion of Windy Gap and C-BT exchanges under the Proposed Action was added to Section 3.5.2.5 of the FEIS under the subsection Windy Gap Diversions. Evaporative losses in Granby Reservoir, Shadow Mountain Lake, and Grand Lake are discussed in Section 3.5.2.3 of the DEIS in the subsection Loss of C-BT Water from Reservoir Evaporation. Evaporative losses in all C-BT reservoirs are charged to the C-BT Project regardless of the Windy Gap contents in that facility. More discussion of the calculation of evaporative losses was added to Section 3.5.2.3 of the FEIS under the subsection Loss of C-BT Water from Reservoir Evaporation.
7	Additionally, while the DEIS attempts to analyze collectively WGFP and Denver Water's Moffat Collection System, the Moffat Expansion Project, it does not provide a thorough analysis. We agree with others who have stated that a single EIS evaluating the impacts of both projects is the only way to guarantee a complete understanding the current and future potential impacts.	

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		Additional information was added to Section 3.5.1.4 of the FEIS to describe the effects of past diversion projects. Table 3-1, which was added to the FEIS, summarizes the effects of historical upstream depletions at the Colorado River at Windy Gap gage (09034250) for the 20-year period from 1985 through 2004. This period was selected because the Windy Gap Project came online in 1985; therefore, it includes the effects of all major upstream transbasin diversions (Grand River Ditch, C-BT Project, Moffat Project, and Windy Gap Project). On average, the Moffat, C-BT, and Windy Gap projects diverted approximately 62% of the average annual native flow at the Windy Gap gage for the period from 1985 through 2004. Additional information on C-BT operations can be found in the WGFP Water Resource Technical Report (ERO and Boyle 2007). The discussion of changes in releases from Williams Fork and Wolford Mountain reservoirs to meet flow recommendations for endangered fish was revised in Section 2.8.2.1. This includes information from the *Colorado Water Users' Commitment to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River* Environmental Assessment. This project includes release of 5,412.5 AF annually from Granby Reservoir that would benefit aquatic life in the upper Colorado River. 6. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. Regarding future potential projects in Eagle County, such as Eagle County growth and the Wolcott Reservoir, see Section 8.1 of the WGFP Water Resources Technical Report for a discussion of the criteria for identifying reasonably foreseeable actions. Wolcott Reservoir was not considered reasonably foreseeable and is currently not a component of the selected alternatives to supply 10,825 acre-feet of water. 7. The FEIS considered the cumulative impacts of the Moffat Project. The cumulative effects analysis included hydrologic modeling of the Moffat Project,

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8	**Modeling** WGFP would not divert during low flow years like 2002, which is why they didn't consider it. We have significant concerns with the modeling used in the DEIS to evaluate impacts the west slope. We question why the DEIS does not include streamflow modeling from 2002 and 2003. These are the most recent driest years on record. Looking at current average year flows allow for the ability to analyze drought years from the perspective of river flows and associated resource impacts.	including changes in Fraser River, Williams Fork, and Blue River flows. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects. 8. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are as follows: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002, and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available, as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years.
9	Additionally, we have a concern with the use of monthly modeling and average daily flows. Monthly modeling does not accurately address the daily needs and impacts to aquatic life, and long-term average daily flows does not accurately represent daily flows in all years. The daily pattern of streamflows within a given month is not the same from year to year. We also feel that the water quality impacts were severely underestimated due to the modeling. Lastly, modeling needs to be extended to the Dotsero gage.	
10	Because of the insufficient modeling used, it's impossible to obtain an accurate and clear understanding of the impacts to the streams in Grand County, to the Colorado River and to the entire Upper Colorado River watershed. If we don't have that, we have no baseline to provide meaningful input on the WGFP.	
	Socioeconomic and Recreational Impacts It's well documented that tourism and recreation sustains our mountain communities. While some choose to live and work in the mountains, others living on the Front Range enjoy easy access to the vast amount of outdoor activities our mountain communities have to offer. The economic stability that tourism brings to our communities is real, and the vast majority of visitors come here to enjoy water related activities – such as skiing, fishing, rafting/kayaking, sailing/boating. The ascetic beauty our streams and rivers provide draws hikers, mountain bikers, backpackers and campers.	
11	It's troubling that the DEIS only considers commercial boating and commercial fishing on one reach of the Colorado River, excluding all other recreational activities. The DEIS excludes economic impacts to things such as lodging, drinking and dining sales, as well as, retail and equipment rental sales. It also does not appear that a potential decrease in home values was assessed. For instance, if Grand Lake continues to be degraded from the pristine lake it once was, what impact will that have on home sales? If assessed values fall on homes, then the amount of property taxes the surrounding communities bring in will be less. As a community that functions economically similar to Grand County, we consider it a huge oversight that a more thorough socioeconomic analysis was not provided in the DEIS.	
12	**Additional Comments** 1.) The statement of purpose and need is too narrow. It doesn't allow for many less environmentally damaging alternatives to be evaluated.	

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		9. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data were used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts from the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for nondrought conditions. Regarding extension of the model study area to the Dotsero gage, see response to Comment No. 7.

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		10. See response to Comment Nos. 6, 8, and 9 regarding the adequacy of the model used to evaluate hydrologic effects to the Upper Colorado River watershed. 11. The recreation analysis focuses on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process and are the most likely to be affected by hydrological changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report, and in the Effects Common to All Alternatives section. Potential effects of hydrological changes on commercial and private fishing opportunities are further described in the FEIS. However, the Aquatic Resources analysis determined that the projected effects to fish habitat are unlikely to result in a loss of angling opportunities or success. The direct and secondary economic impacts of boating and camping activities are described in detail in the Socioeconomics section. Property values are not expected to be affected. Impacts on property tax revenues from land acquisitions for reservoirs have been added to the FEIS. A number of proposed mitigation measures summarized in Section 3.25 of the FEIS would have direct or indirect benefits to tourism-related values and land use, including modified prepositioning to maintain higher water levels in Lake Granby; nutrient reduction measures to offset nutrient loading to the Three Lakes and improve water quality year-round in the Fraser and Colorado rivers; curtailed WGFP diversions to reduce stream temperature; increased flushing flows and other measures. 12. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yields and Participant water rights anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap represented a source of existing water available to the Participants, but required additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for

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		other sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply, and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.
13	2.) Summit County has adopted 1041 land use regulations. From our review of the DEIS, WGFP will cause a change in operation to the original WG Project triggering the need for a 1041 permit by Grand County.	13. There are ongoing discussions between Grand County and the Subdistrict on the need for a new or modification of the existing Windy Gap 1041 Permit. The EIS provides an estimation of the anticipated direct and cumulative effects of the proposed action based on available information. However, resolution of this issue is not required for completion of the NEPA process or issuance of a Record of Decision. Additional discussion on this issue was added to Section 1.10.3 of the FEIS.
14	3.) Senate Document 80 requires that the CBT project is operated in a manor that is protective to the west slope. We have concerns whether such protection are currently in place with present operations, and would like to see assurances of such with the WGFP.	The DEIS on page 3-294 recognizes that such requirements may exist and, if so, they will be followed. Reclamation takes no position on what, if any, local government authorities apply to the WGFP.
15	4.) We have participated in ongoing efforts with both west slope entities and east slope water providers to come up with win-win solution to the Bureau of Land Management's (BLM) Wild and Scenic River Designation process affecting reaches of streams in Grand, Summit and Eagle Counties. The DEIS specifically states that it excludes consideration of whether WGFP would have an impact on BLM's potential Wild and Scenic designation. We feel some sort of analysis should be done to compare eligibility requirements against anticipated effects of the WGFP and the cumulative effects.	14. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
16	5.) It's stated in the DEIS that all WGFP participants have water conservation programs in place. Their programs should measureable and there should be some sort of baseline requiring participants to prove a certain level of conservation. There are a vast amount of tools and resources offered by the state to help assist communities with their water conservation efforts. There's little excuse for not having a solid plan in place. Merely stating that an entity has a water conservation plan is not enough. Those plans need to be scrutinized and proven effective, and that information needs to be included in the DEIS. We appreciate the opportunity to comment. If you should have any questions regarding our comments, please contact Gary Martinez, County Manager at 970-453-3401. Otherwise, we look forward to seeing our issues addressed in the final EIS. Sincerely, Gary Martinez County Manager Kate Boniface Assistant Town Mg Tim Gagen, Town Manager Town of Breckenridge Devin Granbery, Town Manager Town of Dillon Michael Penny Town of Frisco	15. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. The Wild and Scenic designation process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, the decision on Wild and Scenic River status is made by the BLM as part of the planning process, and is not part of the evaluation for the WGFP EIS. 16. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

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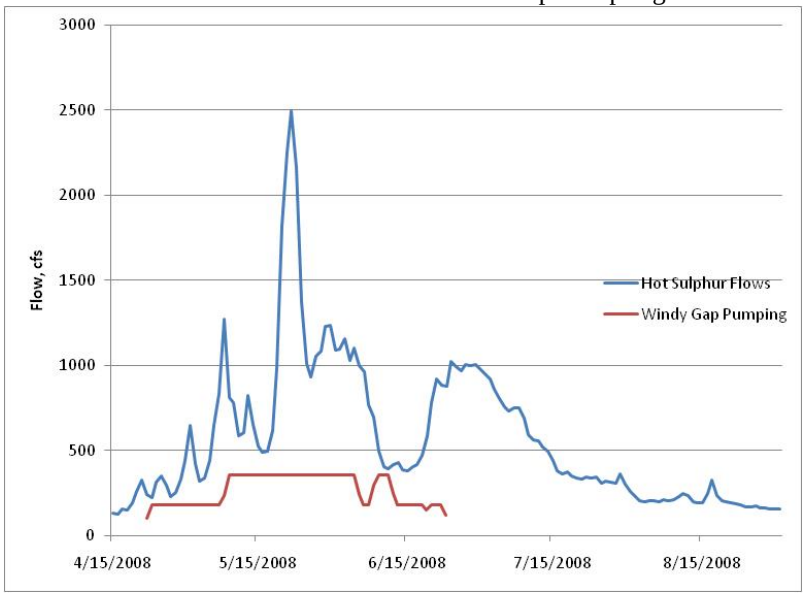
1 2	WGFP 378 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 L.L. Kourse MS. KOURSE: L.L. Kourse, two "Ls", K-o-u-r-s-e. And I manage and operate Tabernash Meadows Water and Sanitation District. I recently spent about six months in Hot Sulphur Springs, helping them with water issues that is directly related to the water quality. What I found in the spring was that the flows coming down the Windy Gap were very erratic. You couldn't predict the best time to run the plant. And nobody at the Windy Gap pumping station would address the situation and give us any input. I was also really surprised to find out that the gauge to Hot Sulphur Springs, the USGS gauge, it was taken off-line in the 1990s. And if you get on the site and you look at gauges, basically every time there has been a great project, you know, public-works project, to benefit everybody by the people that live here, it's just declining. So with that said, I really don't think you have all the data that you need to really review the situation. I think the environmental impact statement doesn't come close to really looking at the issues. And everybody in this rooms knows this. I appreciate how well everybody articulated in great detail what the situation really is here. One of the other things that I found is that -- in government regulatory situations is, people don't do what you expect; they do what you inspect. But I really question whether or not you guys even have the staff and the time to really appropriately review this particular request. And I urge you to, number one, review it carefully; number two, take no action on it at this point, and extend the comment time. Thank you.	1. Windy Gap pumping during 2008 was very consistent, beginning at 184 cfs from April 22 to May 7, increasing to 357 cfs from May 8 to June 11 (with a short reduction to 184 cfs from June 5 to June 7 to enhance peak flows for endangered fish), and dropping again to 184 cfs from June 12 to the end of pumping on June 23 as shown below in the hydrograph for the Colorado River at Hot Sulphur Springs. The variability of flows at the Hot Sulphur Springs gage is due primarily to natural variations in runoff from snowmelt and weather changes. The second hydrograph for the Fraser River near Granby between 4-15-08 and 8-30-08 follows the same curve as the Colorado at Hot Sulphur Springs. 

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		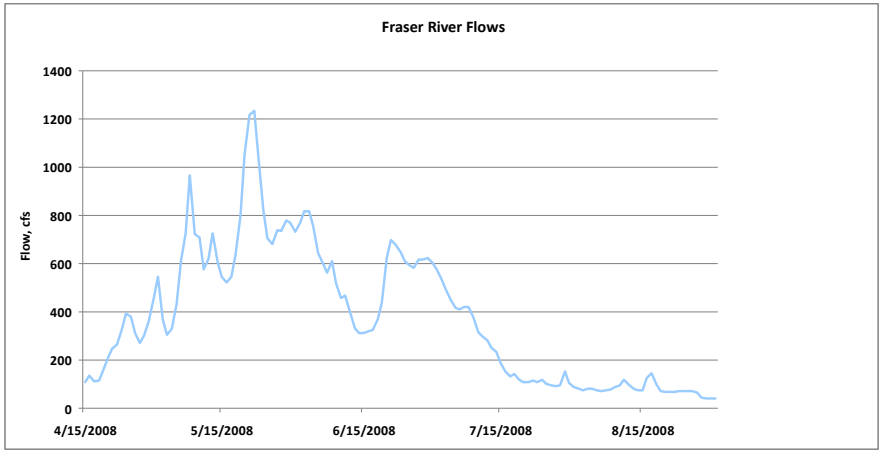 2. Through the EIS process and supporting technical reports, resource impacts were evaluated in detail using the best available information.

Com-ment	Letter #407	Response
1	WGFP 407 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 Gary Behlen MR. BEHLEN: Thank you, Mr. Tully and Mr. Peter. My name is Gary Behlen. I'm the Director of Public Works for the Town of Erie, Colorado. The Town of Erie is a town of over 16,000 in population. The Town is very pleased that the draft EIS impact statement has been published for the Windy Gap Firming Project. We have been an active participant in the project with our neighboring municipalities and districts since its inception. It is a vital to the Town to assure that our citizens will have water supplies needed for a sustainable future. Like others, the Town of Erie actively conserves water and has recently had its conservation plan approved by the Colorado Water Conservation Board. It also has a reuse water program for nonpotable irrigation of its parks and open space. It also -- the Town has acquired 14 Windy Gap units to-date to generate its reuse of water. The project is an integral component of its program because it will firmly yield those Windy Gap units to provide a reliable amount of reuse water on an annual basis. Erie has investigated numerous alternatives to the Windy Gap Firming Project. And it is the firming project that is a cooperative effort which is both environmentally responsible and affordable. It is located off-stream and will firm the yield of an existing water right. It has always been contemplated as a necessity -- as a necessary component of the Windy Gap project. Erie's portion of the project will be funded through the water dedication fees payable to the Town for development under its comprehensive plan. Erie encourages the issuance of a final Environmental Impact Statement and the record of decision authorizing the Windy Gap Firming Project. Thank you.	1. Thank you for your comment.

Comment	Letter #1142	Response
1	WGFP 1142 TOWN OF ERIE 1874 Official File Copy (WGFP) File Code ENV-6.00 Project 245 (Tully) OFFICIAL FILE COPY RECLAMATION SEP 24 2008 Code 1340 WNT 9/26 Copy to September 15, 2008 Will Tully Bureau of Reclamation 11056 West County Road. 18E Loveland, CO 80537 Re: Windy Gap Firming Project Dear Mr. Tully: I am the Director of Public Works for the Town of Erie, Colorado. The Town is very pleased that the Draft Environmental Impact Statement has been published for the Windy Gap Firming Project ("Project"). We have been an active participant in the Project with our neighboring municipalities and districts since its inception. It is vital to the Town to assure that our citizens will have the water supplies needed for a sustainable future. The Town of Erie actively conserves water and recently had its conservation plan approved by the Colorado Water Conservation Board. It also has a water reuse program for non-potable irrigation of parks and open space. The Town has acquired 14 Windy Gap Units to date to generate its reuse water. The Project is an integral component of its program because it will firm the yield of those Windy Gap Units to provide a reliable amount of reuse water on an annual basis. Erie has investigated numerous alternatives and the Windy Gap Firming Project is a cooperative effort which is both environmentally responsible and affordable. It is located offstream and will firm the yield of an existing water right. It has always been contemplated as a necessary component of the Windy Gap Project. Erie's portion of the Project will be funded through water dedication fees payable to the Town for development under its Comprehensive Plan. 645 Holbrook • P.O. Box 750 • Erie, Colorado, 80516 • Phone (303) 926-2700 • Fax (303) 926-2705	1. Thank you for your comment.

Com-ment	Letter #1142	Response
1	Erie encourages the issuance of the Final Environmental Impact Statement and the Record of Decision authorizing the Windy Gap Firming Project. Sincerely, TOWN OF ERIE Gary W. Bohlen, P.E. Director of Public Works Cc: Mike Acimovic- Town of Erie Paul Zilis- Vranesh & Raisch Eric Wilkinson- NCWCD	

Comment	Letter #1069	Response
	WGFP 1069 FRASER COLORADO Official File Copy / File Code ENV-6.00 WGFP / Project 245 / Control No. / Folder I.D. Tully OFFICIAL FILE COPY RECLAMATION Date DEC 30 2008 / Code 1340 / Surname / Date 1/9/08 / Copy to December 29, 2008 Will Tully, Bureau of Reclamation 11056 W. County Road 18E Loveland, CO 80537 (970) 663-3212 (fax) SUBJECT: Windy Gap Firming Project Comments Dear Mr. Tully: I am writing on behalf of the Town of Fraser regarding the Windy Gap Firming Project and would like to offer the following comments:	
1	**Purpose and Need Statement** 1. The Purpose and Need Statement is too narrow, thereby improperly limiting the range of alternatives analyzed. 2. It is so narrow that many less environmentally damaging alternatives that do not involve more diversions from the Colorado River are not brought forward.	1. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yield from Participant water rights that was anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap water represented a source of existing water available to the Participants, but required additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for other sources of water.
2	**Senate Document 80** Senate Document 80 is the legal foundation of the Colorado Big Thompson (C-BT) Project. Senate Document 80 describes C-BT facilities and conditions to protect the beneficiaries of those facilities, including Grand County and the west slope. Senate Document 80 contains requirements for use of C-BT water by the Northern Colorado Water Conservancy District as a supplemental supply on the east slope, use of Green Mountain Reservoir for west slope beneficiaries, and provisions that specifically protect the headwaters of the Colorado River system in Grand County. 1. The DEIS excludes consideration of Senate Document 80 requirements which protect Grand Lake and the Colorado River, including specific considerations about recreation, aesthetics and fish. 2. It should be noted that connection of WGFP facilities to C-BT facilities and storage of C-BT water in non-project facilities would require Congress to amend Senate Document 80. Town of Fraser PO Box 370, Fraser, CO 80442 office 970-726-5491 fax 970-726-5518 www.frasercolorado.com	2. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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2	3. Senate Document 80 imposes upon Reclamation an affirmative duty to operate the C-BT Project and its facilities in a manner that is protective of the Colorado River fisheries. Not only does the DEIS fail to provide the necessary analysis of impacts to aquatic resources within the reach of the Colorado River evaluated, it entirely fails to analyze the impacts of WGFP on the aquatic resources below Gore Canyon.	
3	**Permitting Authority** 1. It should be recognized that Grand County will have 1041 permitting authority over all of the alternatives, not just those where there will be construction in Grand County. The Bureau has stated in the past that a new or amended 1041 permit may not be required for the WGFP. However, a new or amended 1041 permit is required for new facilities and operational changes. 2. Changes to C-BT operations demonstrate that this is a different project. Grand County issued permits for the original Windy Gap Project. Each of the proposed alternatives will result in a change in the operation of the permitted Windy Gap Project thereby triggering either amendments to the existing permits or new permits.	3. There are ongoing discussions between Grand County and the Subdistrict on the need for a new or modification of the existing Windy Gap 1041 permit. The EIS provides an estimation of the anticipated direct and cumulative effects of the proposed action based on available information. However, resolution of this issue is not required for completion of the NEPA process or issuance of a Record of Decision. Addition discussion on this issue was added to Section 1.10.3 of the FEIS.
4	**Cumulative Impacts** 1. The DEIS should present a significant discussion of cumulative impacts and show much more detailed information regarding the full history of streamflows and stream depletions to this region, not just the flows averages before and after C-BT. The	4. The Affected Environment section of Surface Water Hydrology describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. The existing hydrologic conditions presented in the EIS are based on the available information as required by CEQ regulations implementing the NEPA and provide a baseline from which to make comparison of the impacts of each of the alternatives. The WGFP FEIS considered past, present, and reasonably foreseeable future actions, and provides a detailed discussion of those effects in the Cumulative Effects section for each resource.
5	2. The DEIS should include a more thorough discussion of C-BT and Windy Gap operations on the West Slope, particularly in terms of when water is being exchanged from where to where and how reservoir evaporation is being accounted for and managed.	5. The discussion of C-BT and Windy Gap operations on the West Slope is discussed in detail in the DEIS, and additional information was added in the FEIS as noted below. Section 3.5.2.3 provides a discussion of Windy Gap operations and how those operations affect the C-BT Project. Section 3.5.2.5 addresses C-BT and Windy Gap Project operations at major West Slope facilities including the Adams Tunnel, Windy Gap, Granby Reservoir, and the Willow Creek Feeder Canal. A discussion of Windy Gap and C-BT exchanges under the Proposed Action was added to Section 3.5.2.5 of the FEIS under the subsection Windy Gap Diversions. Evaporative losses in Granby Reservoir, Shadow Mountain Lake, and Grand Lake are discussed in Section 3.5.2.3 of the FEIS in the subsection Loss of C-BT Water from Reservoir Evaporation. Evaporative losses in all C-BT reservoirs are charged to the C-BT Project regardless of the Windy Gap contents in that facility. More discussion of the calculation of evaporative losses was added to Section 3.5.2.3 of the FEIS under the subsection Loss of C-BT Water from Reservoir Evaporation.
6	3. A more detailed description of past water diversion projects and their resulting impacts (e.g., conditions before and after the C-BT, the Windy Gap Project, and Denver Water's Moffat Collection System project) is necessary to understand how these conditions came about.	More information was added to Section 3.5.1.4 of the FEIS to describe the effects of past diversion projects. Table 3-1, which was added to the FEIS, summarizes the effects of historical upstream depletions at the Colorado River at the Windy Gap gage (09034250) for the 20-year period from 1985 through 2004. This period was selected because the Windy Gap Project came online in 1985; therefore, it includes the effects of all major upstream transbasin diversions (Grand River Ditch, C-BT
7	4. Instead of using actual existing conditions as a baseline against which to measure impacts of the WGFP alternatives, the DEIS used a modeled stream flow regime. The modeled conditions show existing diversions from the original Windy Gap at an annual average of 36,000 a.f. on the average per year when in reality the diversions were only 11,000 per year. Consequently, the significance of the impacts of the additional diversions associated with the WGFP were greatly understated. Since all the impacts of concern in Grand County are caused by stream depletions (aquatics, boating, etc) the relative significance of all of those impacts are also under-stated.	
8	5. The WGFP and Denver Water's Moffat Collection System project are cumulative actions. A single EIS analyzing the impacts of both projects is not a mere formality. Without such EIS, there can be no assurance that the Bureau of Reclamation and Corps of Engineers have, collectively, taken a hard look at alternatives to the simultaneous operation of the WGFP and Moffat Collection	

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		Project, Moffat Project, and Windy Gap Project). On average, the Moffat, C-BT, and Windy Gap projects diverted approximately 62% of the average annual native flow at the Windy Gap gage for the period from 1985 through 2004. Additional information on C-BT operations can be found in the WGFP Water Resource Technical Report (ERO and Boyle Engineering 2008). 6. The purpose of the EIS is not to provide an exhaustive accounting and analysis of all previous actions that have affected the environment, but to identify and evaluate the impact of alternative actions and the incremental effect of those actions. The cumulative effects assessment, as described in response to Comment No. 4 above, included a detailed analysis of the effects of past, present, and reasonably foreseeable future actions. The Water Resource Technical Report referenced in the FEIS also contains additional detail on background hydrology. 7. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005 presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the Project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.

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		In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, and net depletions to the Colorado River and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 8. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. Hydrologic data was shared so that the model simulations of the WGFP and Moffat Project were consistent and in appropriate detail for each EIS. Section 3.5.2.2 of the FEIS includes information on model simulations for the WGFP and Moffat Project and the coordination of those modeling efforts. The cumulative effects analysis included hydrologic modeling of the Moffat Project, including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate either the direct, indirect, or cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

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8	System Project, the cumulative environmental impacts of those two projects (with emphasis on the hydrology, water quality, and aquatic resources of the Colorado River), and measures to mitigate those impacts.	9. The Shoshone call reduction is analyzed as a reasonably foreseeable action in Section 3.5.3.2 of the DEIS under the subsection Colorado River, and in Section 8.4.2.6 of the Water Resources Technical Report. In 2003, the gain to Windy Gap from the Shoshone call relaxation was 7,850 AF, or approximately 10% of the Windy Gap supply that year, as shown in Table 29 of the Water Resources Technical Report. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the WGFP would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked.
9	6. The Shoshone call reduction needs to be examined more closely. When the agreement with Denver Water went into effect in 2003, that was also the greatest year of diversion by Windy Gap of 64,200 af. The DEIS is full of statements that Windy Gap will not divert during a dry year, but there is no analysis of the effects from the Shoshone call reduction.	
	Mitigation/Grand County Stream Management Plan	
10	1. Although the DEIS describes mitigation for the original Windy Gap Project, it does not analyze what additional mitigation would be required due to operational and other changes resulting from the WGFP.	10. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the Proposed Action. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
11	2. Many of the proposed west slope mitigation measures for the Proposed Action are too vague and uncertain to enable the Bureau, Grand County, or other interested groups and individuals to evaluate "the severity of the adverse effects."	11. See response to Comment No. 10.
12	3. The DEIS fails to consider or discuss Grand County's Stream Management Plan (GCSMP). Grand County has been involved in an ongoing effort to provide a scientific study for the analysis and recommendation for preferred flow regimen for streams and rivers in Grand County. The GCSMP takes into consideration the concerns with cumulative impact and looks at the river system and various project operations as a whole. The DEIS needs to include information from the GCSMP and mitigation needs to be based on the findings in the Plan.	12. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS, may help meet some of the goals of the SMP.
	Modeling	
13	1. There are significant concerns regarding the modeling used to evaluate West Slope impacts. • Because fish need water on a daily basis rather than a monthly average basis, the use of a monthly model may mask great fluctuations in water levels. A detailed daily model should be used to evaluate the projected new water yield from additional facilities and additional diversions, and then a separate monthly model should be used to evaluate the effects to the source area of the water supplies. The upper Colorado River basin can experience dramatic flow changes due to daily changes in water administration and the operations of several large-scale water facilities within the modeling reach.	
14	• The DEIS says the model ends in 1996, and ignores the recent dry years like 2002 and following. This is a flaw in being able to determine the impacts, because the year of highest diversions by Windy Gap was in 2003, which followed the 2002 dry year.	
15	• The use of the long-term average daily flows to generate the factors to represent daily flows in all years, wet, average or dry, is inappropriate and may be highly inaccurate. The daily pattern of streamflows within a given month is not the same from year to year.	13. Daily data were developed from monthly model output by disaggregating monthly values based on daily historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of
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		flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D Model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts due to the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for nondrought conditions. 14. The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (flow, diversion, evaporation, and precipitation) were readily available through that year, and the State's CDSS model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows

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		in a year like 2002. Windy Gap water rights did not come into priority in 2002, and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. 15. In addition to the long-term average daily flows, daily data for the entire 47-year study period for the USGS gages on the Colorado River below Granby Reservoir, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and for the gage on Willow Creek below Willow Creek Reservoir were generated using historical daily data for nearby USGS gages. See Section 4.2.4 in the Water Resources Technical Report for a detailed discussion of the process used to disaggregate monthly model output. Daily disaggregation factors were developed as follows: for each day that data were available within the 1947 through 1996 study period, the percentage of flow that occurred on that day was calculated as the daily flow divided by the total flow that occurred in the corresponding month. The daily disaggregation factors were applied to the monthly flow data at the corresponding gage to develop daily flows for the entire study period.

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16	2. The Kremmling gage was chosen as the downstream end of the Study Area because the majority of the effects to the Colorado River are expected upstream. While this is largely true for the WGFP, it is not true for some of the cumulative effects, such as Eagle County growth, Homestake diversions and the potential construction of Wolcott Reservoir. These would affect the WGFP area due to changes to the Eagle River flows and Shoshone calls. The active modeling area should be extended downstream to the Dotsero stream gage. This would incorporate the anticipated depletions upstream of Shoshone from projected growth in the Eagle River basin, and would allow for an evaluation of the effects from the construction of Wolcott Reservoir as a source for the 10,825 water.	16. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. Regarding future potential projects downstream of Kremmling, see Section 8.1 of the Water Resources Technical Report for a discussion of the criteria for identifying reasonably foreseeable actions. Wolcott Reservoir was not considered reasonably foreseeable and currently is not a component of the selected alternative to supply 10,825 water.
	Water Quality	
17	1. In most instances, inappropriate modeling was used when evaluating WGFP impacts on water quality, leading to seemingly minor adverse impacts.	17. Reclamation believes that the modeling techniques used for the EIS are appropriate given the available data and the level of understanding of complex, interacting water-quality processes, and how to represent them in a model. If the comment included what specifically makes the modeling "inappropriate," this response could be more specific. A dynamic temperature model was used in the FEIS to better evaluate Colorado River stream temperature as described in Section 3.8.
18	2. Extremes, not averages are the concern for water quality, which is why the State uses 85%-percentile statistical value of the available relevant data to define existing water quality, not the average, as was used in the DEIS.	18. To describe the affected environment and for ease of understanding by the reviewing public, mean, median, minimum, and maximum values for a wide variety of water quality constituents are reported in the Lake and Reservoir Water Quality Technical Report (AMEC 2008). These values include statistics describing a central tendency as well as extremes. This particular description was not performed from a regulatory standpoint – only to show statistical summaries of the data. Additional analysis was performed to look at whether standards were being met. With respect to model results, average annual conditions, as well as peak chlorophyll *a* and minimum dissolved oxygen concentrations, were reported in the DEIS. In addition, figures displaying daily values for total phosphorus, total nitrogen, chlorophyll a concentrations, Secchi-disk depths, and dissolved oxygen in each of the Three Lakes were added to Section 3.8.2.4 of the FEIS.
19	3. Pine-bark beetle infestation and climate change should also be considered as part of the cumulative impacts for lake and reservoir water quality report and for stream water quality.	
20	4. The report provides absolutely no evidence of any ground water investigations, but states "no substantial effects to ground water quality." Is statement founded and true?	
	Hydrologic Impacts	
21	1. Some of the most significant impacts to Grand County result from hydrologic changes associated with flow depletions. The analysis of hydrologic conditions in the DEIS must document changes in magnitude, frequency, duration, timing, and rate of change before the impacts of flow depletions on the aquatic environment can be adequately understood.	
22	2. Actual changes in daily flows and daily water quality, including temperature need to be evaluated, versus changes in annual or monthly flows or water quality. Reporting average annual or monthly flows and ignoring other flow factors can mask significant impacts that may occur on a given day or series of days, thereby creating the false impression that environmental impacts are insignificant.	
	Aquatic Life	
23	1. There is an inadequate discussion of mitigation for the aquatic environment. 2. Not only does the DEIS fail to provide the necessary analysis of impacts to aquatic resources within the reach of the Colorado River evaluated, it entirely fails to analyze the impacts of WGFP on the aquatic resources below Gore Canyon. This is particularly disturbing in light of the ongoing stakeholder effort to develop a stream management plan to protect the fishing values of the river down to State Bridge, as an alternative to Wild & Scenic Rivers Act designation by Congress.	
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		19. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation for applicable resources in Chapter 3 of the FEIS. Quantitative effects of pine bark beetle infestation on hydrology and water quality are difficult to accurately predict because of the numerous assumptions that would be necessary. The FEIS indicates the types of effects that could occur as a result of pine bark beetle-killed trees. These impacts are possible with or without the WGFP, and would be similar for all of the alternatives. Additional discussion was added in Section 2.8.2.1 on the potential impact of pine bark beetle-killed trees. 20. Because the Colorado River is regionally the lowest topographic feature in this part of Colorado, by standard hydrologic principles, bedrock ground water discharges to the Colorado River. There may be localized areas where the river may lose water for short distances to the alluvium, but ultimately, this ground water will discharge back to the Colorado River some distance downstream from the point of loss. Bedrock ground water of varying water quality currently discharges to the river alluvium and eventually the river and the current water quality reflects this combination of surface water and bedrock ground water. Windy Gap diversions would not affect ground water discharge to the river and, therefore, would not change the current input of dissolved material to the river. Water quality in alluvium adjacent to the Colorado is currently dependent on many processes, including the rate and location of discharge from bedrock aquifers, water quality of bedrock ground water, and recharge from the Colorado River. Relatively small predicted stage changes in the Colorado River due to Windy Gap diversions are not anticipated to measurably impact bedrock ground water quantity and quality, or its influence on alluvial water quality. The predicted changes in river water quality due to Windy Gap diversions would influence alluvial water quality where river water recharges the alluvium. However, because the Colorado River is a gaining river, all bedrock and alluvial ground water would eventually discharge to the river. All alluvial ground water returns to the river where the thickness of the alluvium essentially reduces to zero, such as at the mouths of various canyons along the river. Refer to technical memos regarding the recharge relationship between predicted stage changes in the river and alluvial ground water (Hydros Consulting 2011a, 2011b, and 2011c). The ground water section of the FEIS was revised to include more information on ground water quality.

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		21. Daily data were used to generate flow duration curves and daily hydrographs, and determine the frequency and magnitude of daily flow changes. This data were used to address daily hydrologic changes that may be more critical than average, wet, and dry monthly changes. Daily data were used for the evaluation of effects on aquatic resources. Section 3.5.2.2 of the FEIS was revised to discuss the use of daily data for resource evaluations. See response to Comment No. 13. 22. See response to Comment Nos. 13 and 21 regarding the development and use of daily data. Monthly averages were relied on to generally characterize hydrologic changes associated with the alternatives. However, daily data were used to generate flow duration curves and daily hydrographs, and determine the frequency and magnitude of daily flow changes. Daily data were used to address daily hydrologic changes that may be more critical than average, wet, and dry monthly changes. Section 3.5.2.2 of the FEIS was revised to discuss the use of daily data for resource evaluations. 23. The aquatic resource section of the FEIS includes an analysis of impacts to aquatic habitat downstream of the Blue River confluence, based on hydrologic changes at the Kremmling gage. Those impacts are displayed in Tables 3-116 to 3-119 in the FEIS. Additional analysis and narrative was added to Section 3.9.2.3. Results of the analysis impacts to fish habitat for below the Blue River are indicative of likely impacts for several miles below the Colorado River. Average monthly Colorado River flow decreases less than 7% from existing conditions compared to the Proposed Action, and less than 3% annually. Because hydrologic and water quality impacts of the WGFP on the Colorado River diminish below the Blue River confluence, measurable impacts to aquatic resources are unlikely farther downstream. To address aquatic mitigation, the Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) approved it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).

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24	3. Elevated stream temperatures are a significant concern in the upper Colorado River. As the DEIS indicates, stream temperature at various locations periodically exceed levels deemed to be safe for the fisheries. The DEIS fails to evaluate: • How incremental increases in stream temperatures caused by operation of the WGFP and other reasonably foreseeable projects will impact aquatic life; • How stream temperatures will increase over a series of days • The potential for stream temperature conditions that have chronic impacts on aquatic resources	24. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
25	4. The water quality model on which the DEIS relies generates predictions based on conditions for the single modeled day. It does not predict what conditions will be at other times. As a result, the DEIS fails to take a hard look at the potential impacts of WGFP and reasonably foreseeable projects on the aquatic resources of the Colorado River.	25. See response to Comment No. 24.
26	5. The DEIS's surface water quality analysis attempts to compare modeled stream temperature increases due to operation of WGFP and other reasonably foreseeable projects to the State Standards. Unfortunately, it uses the interim standards of 2006, not the final standards adopted in 2007 by the Water Quality Control Commission. As a result, the DEIS entirely fails to evaluate the extent and frequency with which operation of WGFP and other projects will increase temperature levels beyond the acute, lethal tolerance levels reflected in the Commission's regulation adopted in 2007.	26. The interim standards for the Colorado River were noted in the DEIS. Those were the standards in place when the document was written. The FEIS was revised using the currently adopted temperature standards when discussing the impacts of the project.
27	6. The DEIS fails to evaluate aquatic life impacts below the confluence of the Blue River.	27. See response to Comment No. 23.
28	**Socioeconomic** 1. Water resources and the local Grand County economy are inextricably linked. The WGFP directly impacts the environmental quality of the Colorado River, Lake Granby, Shadow Mountain Reservoir, and Grand Lake, thus it will also impact the tourist and recreation industry, the lifeblood of Grand County's economy. However, very few of these impacts are measured in the DEIS – and those that are measured are underestimated. Impacts need to be further evaluate and addressed in the DEIS.	28. Reclamation believes that the socioeconomic effects related to water changes were appropriately quantified where data on use and impacts are available. Impacts of the alternatives on recreation and tourism are qualitatively described wherever possible, recognizing that these effects vary widely by individual user. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed Project. Many of those measures including modified prepositioning to maintain higher water levels in Granby Reservoir; nutrient reductions to the Fraser River, Colorado River, and Three Lakes; potential for socioeconomic impacts in Grand County. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
29	2. There is no acknowledgement in the DEIS of the relationship between water and land use. There are potential negative relationships between WGFP water impacts and land use including impacts to agriculture through irrigation ditch failures and impacts to development directly dependent on river and reservoir views and usage. The Land Use Section of the DEIS does not acknowledge a relationship between Colorado River hydrology and agricultural land use.	29. The Subdistrict would comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In addition, the WGFP would comply with Colorado River bypass flow requirements established by the *Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project* (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir, 135 cfs below the Williams Fork, or 150 cfs below Troublesome Creek. The EIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of
30	3. In the visual, land use, recreation and socioeconomic impacts, the DEIS provides very few mitigation solutions because it quantifies very few impacts.	
31	4. The Economic Impact of Travel on Colorado report estimates that in Grand County, the direct impact of spending by visitors equaled $169.7 million in 2003. Local businesses as well as municipal governments are highly dependent on retail Town of Fraser PO Box 370, Fraser, CO 80442 office 970-726-5491 fax 970-726-5518 www.frasercolorado.com	

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31	sales (see adjacent graph). Recreation and tourism is the lifeblood of Grand County and many of our mountain communities. Water and simultaneous scenic beauty is the lifeblood of its recreation and tourist industry. **Recreational Impacts** 1. The only recreation activities quantified in the DEIS are commercial kayaking and commercial rafting on selected portions of the Colorado River and related camping. This is narrow and inadequate. There are other recreational activities that occur in other areas that need to be evaluated as well that bolster the Grand County economy. Additionally it should be noted that recreational activities have related impacts on lodging, restaurant sales, recreation equipment rental providers and guides or outfitters, and other incidental purchases. Gradually, tourism has grown to become the primary economic driver in Grand County, like most of our mountain communities. Unlike other more urban environments, tourist activities in mountain communities rely directly on the natural flow of water.	diversion for their water. Per the Azure Agreement, the Subdistrict funded $500,000 in improvements for ranches downstream from Windy Gap Reservoir to maintain their diversion structures on the Colorado River. The original Windy Gap Project included diversions greater than those in the WGFP. The 1980 Azure Agreement was developed to mitigate and address all objections to the Windy Gap Project. The Azure Agreement was signed by 30 ranchers. Mitigation measures described in response to Comment No. 28 address some of the concerns related to land uses adjacent to streams and reservoirs. 30. The EIS provides a reasonable and accurate description of the impacts of the alternatives, based on accepted data sources and analysis methods. The Subdistrict has identified and proposed several voluntary mitigation measures to reduce impacts. See response to Comment No. 28. 31. Your comment is acknowledged. 32. The Recreation analysis focuses on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process, and are the most likely to be affected by hydrological changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report and in the Effects Common to All Alternatives section. Impacts to recreation were quantified where data on use and impacts are available. Effects of the alternatives on recreation experiences and aesthetics are qualitatively described wherever possible, recognizing that these effects vary widely by individual user. The direct and secondary economic impacts of boating and camping activities are described in detail in the Socioeconomics section. 33. The Gold Medal designation requires that waters with this designation meet criteria for the number of trout greater than 14 inches long/per acre and number of pounds per acre. Many factors can impact fish density and size. Habitat and food resources are included in those factors. Based on the results of the aquatic analysis, food resources are not expected to change and habitat would decrease in some years. Another factor that can impact fish populations more rapidly is fishery management, in particular, harvest regulations. CDOW studies during the mid- to late-1970s showed that restricting harvest limits or terminal tackle could result in large increases in fish populations in Colorado rivers. The project proponent or Reclamation does not specify fishery management for the Colorado River or the reservoirs. We have assumed that management of those waters would be consistent with management in the recent past. Therefore, we do not expect that WGFP would alter the Gold Medal designation. The DEIS correctly states that hydrological changes are unlikely to adversely impact
32	2. The DEIS acknowledges a 20 mile segment of the Colorado River as having Gold Medal designation, but does not discuss whether WGFP or the cumulative effects would threaten this designation. This designation is made by the Colorado Wildlife Commission for it's outstanding trout fisheries. The reputation of Gold Medal draws fisherman nationally and internally, providing a huge boost in tourism dollars. Overall, there is little discussion of the impacts to fishing. Most of the discussion relates to float boating.	
33	**Wild and Scenic** All reaches of the Colorado River in Grand County are under consideration by the Bureau of Land Management (BLM) for "Wild and Scenic River Designation." For a segment that has been identified as "eligible" for inclusion in the Wild and Scenic River System, federal policy requires agencies to "evaluate all actions within their control through the filter of the river's potential for designation. Some specific authorities for protecting river-related values include the Clean Water Act for free flow and water quality, the Endangered Species Act for plant and animal species within a river corridor, the Archaeologic Resources Protection Act for cultural resources, the National Environmental Policy Act, and the Federal Lands Policy and Management Act." 1. The DEIS specifically states that it excludes consideration of whether the WGFP would impact BLM's determination of Wild and Scenic Designation. This is a potentially significant designation that could generate substantial visitor revenues for Grand County. While not usurping BLM's analysis, the DEIS should compare eligibility requirements against anticipated effects of the WGFP and the cumulative effects.	
34	**Water Conservation** 1. Although the DEIS rejects water conservation as an alternative, it does not explain why water conservation should not be proposed as an additional mitigation measure. The DEIS does, after all, recognize that "[t]o meet future water requirements will require continued improvements in water conservation in addition to the proposed WGFP."	
35	Town of Fraser PO Box 370, Fraser, CO 80442 office 970-726-5491 fax 970-726-5518 www.frasercolorado.com	

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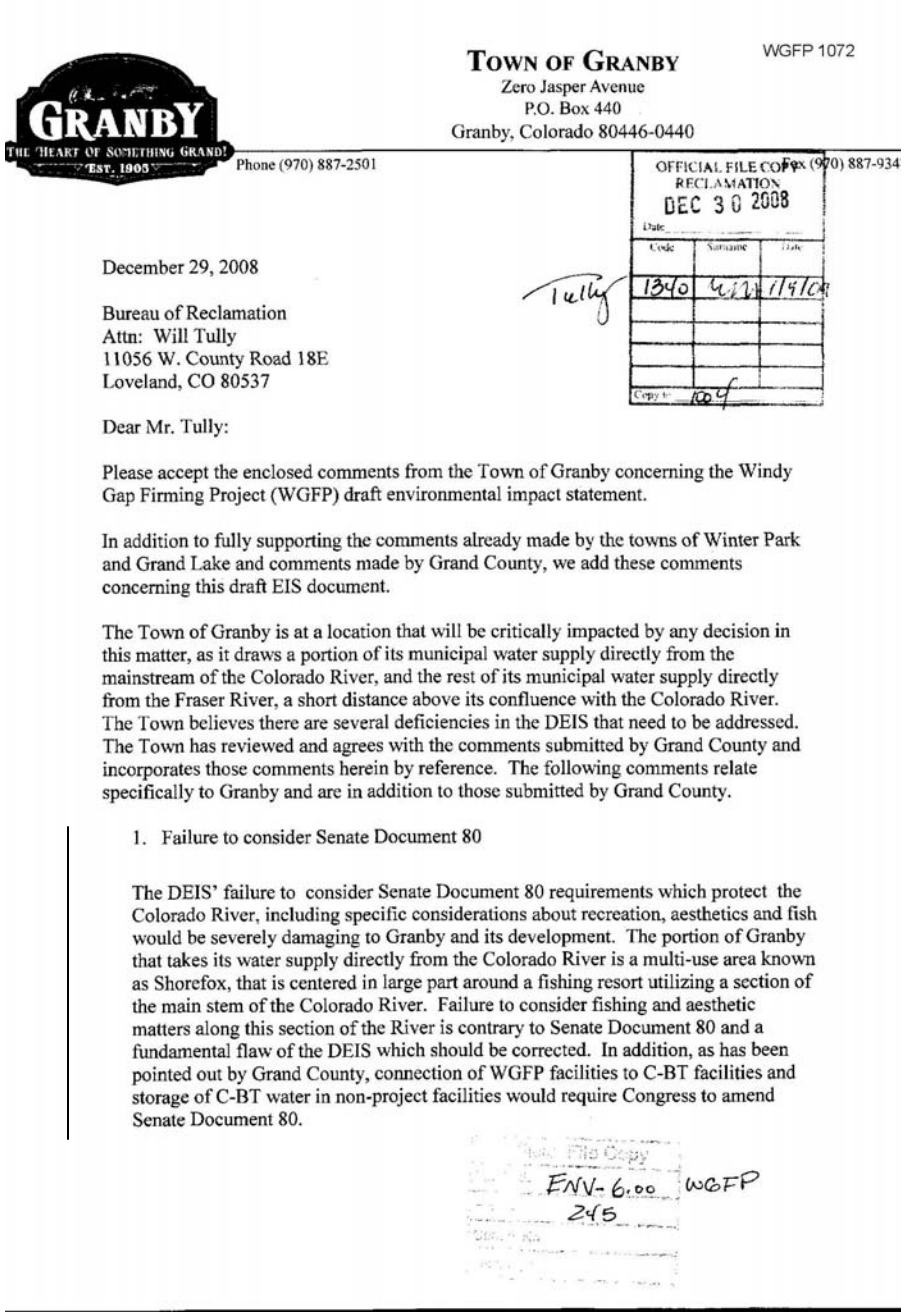
35	2. In order to minimize the amount of water removed from the Colorado River at the Windy Gap Pumping Plant and Reservoir, each of the eastern slope participants should be required, to the maximum extent feasible, to implement reuse programs and make successive use of the foreign water. 3. WGFP participants should also be required to have "measurable" water conservation plans in place. We appreciate the opportunity to comment. Sincerely, Jeffrey L. Durbin Town Manager Town of Fraser PO Box 370, Fraser, CO 80442 office 970-726-5491 fax 970-726-5518 www.frasercolorado.com	sport fishing under any alternative. This is based on both the timing of flow changes and the results of the Aquatic Resources analysis, which describes that the projected effects to fish habitat would not result in a loss of angling opportunities or success. The FEIS includes additional mitigation measures for aquatic resources, as developed in the Fish and Wildlife Mitigation Plant (FEIS Appendix E) and described in Sections 3.8.4 and 3.9.4. 34. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. This process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, Wild and Scenic River status is a determination made by the BLM as part of the planning process and is not part of the evaluation for the WGFP EIS. 35. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Com-ment	Letter #1072	Response
1		1. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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2	2. Recreational impacts Granby has been and increasingly will be a mecca for outdoor recreational activities. Within Town boundaries, residents and visitors can hike, camp, canoe, kayak, golf, raft, fish, and ski. Recreation accounts for an increasing portion of the life blood of the Town, as well as the rest of Grand County. All of these activities are dependent in large part on the maintenance of adequate stream flows in the Colorado River and its tributaries as they course through the Town. The DEIS is seriously flawed in that it considers only the impacts on kayaking and commercial rafting, but fails to consider any of these other recreational activities, as well as the general need for water for aesthetics in connection with all of these activities. The Town has undertaken the expenditure of hundreds of thousands of dollars during the past few years in an effort to ensure adequate stream flows and the maintenance of water quality in the Colorado River and its tributaries. Those efforts include, but are by no means limited to the Town's participation in the acquisition of the Clinton Reservoir. This was a multi-public entity effort involving Grand and Summit Counties, as well as several municipalities within those counties, including the Town of Granby. The purpose is, in large part, to maintain adequate stream flow in the upper portions of the Fraser River a short distance before its confluence with the Colorado River. More recently, the Town has participated financially with Grand County and other municipal entities and water districts within Grand County to acquire an interest in the Vail Ditch, again for the primary purpose of maintaining and improving stream flow in the Colorado and Fraser Rivers. If the Colorado and/or Fraser River stream flow levels are again reduced due to the WGFP, the efforts of all of these public entities and their citizens will have been for naught. These efforts also emphasize the need for further analysis of the inter-relationship between the WGFP and the operation of Denver's Moffat Tunnel diversions, as noted by the County.	2. Potential impacts to land-based recreational activities, including camping, hiking, and sightseeing, are described in the Recreation Resources Technical Report and in the Effects Common to All Alternatives section. No data currently exist regarding the relationship between water-based activities and land-based recreation. By their very nature, most recreation uses are widely dispersed, are not quantified, and the quality of recreation experiences vary widely by individual user. For this reason, no attempt was made to quantify effects on recreation if there is not sufficient data to support that analysis. Instead, potential impacts were described wherever possible in a qualitative manner based on sound logic and professional experience using the best available information. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Those measures are discussed for each resource and summarized in Section 3.25 of the FEIS. The FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
3	3. Impacts on water diversion and growth within the Town Over the past decade the Town of Granby has evolved from a town approximately 1,000 acres in size, to its present limits which encompass more than 7,000 acres. Much of the newly annexed area has been platted and many new homes built. To ensure the proper planning for such growth, along the way Granby has required the provision of adequate water rights to the Town to service the needs of its citizens and visitors at full build out. Such growth and increased use of future water rights is permitted and even contemplated under the great and growing cities doctrine. However, the Town does not believe that adequate consideration was given to this doctrine or the demands on the Colorado and Fraser Rivers at the Town's full build out level in the modeling performed as part of the DEIS. This deficiency needs to be fully addressed before further consideration is given to the WGFP. We genuinely appreciate the opportunity the Town of Granby has been given to review and comment on the draft EIS. The Town is concerned about the potential impacts this project could have on the Town of Granby and its future as well as on the surrounding area and the continued economic viability and sustainability of the entire County. Your	3. The estimates of build-out growth for Grand and Summit counties were provided by the individual water providers/users in conjunction with the UPCO Study, Upper Colorado River Basin Study Phase II Final Report (Hydrosphere, May 2003). After the 2003 UPCO Report was published, the UPCO participants in Summit and Grand counties provided revisions to several existing and build-out demands. Revisions to these build-out demands were provided to Denver Water primarily via Lane Wyatt with the Northwest Colorado Council of Governments. Participants in the UPCO study were given the opportunity to review and comment on the assumptions used in Denver Water's Platte and Colorado Simulation Model (PACSM) related to their demands to confirm their accuracy. The build-out demands and assumptions related to water use for the Town of Granby were obtained from Denver Water and incorporated in the WGFP model for the cumulative effects analysis.

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	consideration of our comments and concerns will be greatly appreciated. Thank you for your efforts and time in this matter. Sincerely, Don W. Baird Town Manger On behalf of Jynnifer Pierro, Mayor Cc: Grand County Board of Commissioners Town of Fraser Town of Grand Lake Town of Hot Sulphur Springs Town of Kremmling Town of Winter Park Granby Sanitation District Silver Creek Water and Sanitation District	An agreement (*Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project* dated April 30, 1980) between the Municipal Subdistrict, Grand County, and other parties to the original Windy Gap Project included a provision that the Subdistrict would subordinate its Windy Gap decrees to all present and future in-basin irrigation, and domestic and municipal uses (excluding industrial uses) on the Colorado and Fraser rivers and their tributaries above the Windy Gap Reservoir site. This agreement would not change with the WGFP. Middle Park Water Conservancy District's participation in the WGFP also would improve the amount and reliability of water supplies for use in Grand County.

Com-ment	Letter #379	Response
1 2	WGFP 379 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Elmer Lanzi MR. LANZI: My name is Elmer, E-l-m-e-r, Lanzi, L-a-n-z-i. I'm a town trustee. I'm the most junior trustee of the Town of Grand Lake. We have a quorum here tonight. A public speaker, I'm not. But I would at this time, after listening and learning, I would like to declare the 1937 Big Thompson project a complete and utter failure, ecologically. It should be shut down. I would like to also be brief. The conspicuous consumption of the Eastern Slope is a thing of the past. The thing of the future is the Western Slope. This is the front yard for the Eastern Slope. You need to preserve it. I have to say no, no to this project. Clean up what you already have. Thanks very much.	1. Thank you for your comment. The focus of the WGFP EIS is to disclose the anticipated effects of the proposed WGFP and identify appropriate mitigation measures that will avoid or minimize adverse effects of the project. Issues related to operation of the C-BT Project are being evaluated and addressed though other programs and cooperative activities with Grand County and others. 2. Thank you for your comment.

Comment	Letter #222	Response
	TOWN OF GRAND LAKE Official File Copy ENV-6.00 245 WGFP Tully 1320 DEC 1 0 2008 1000, 1005, 1004, 1002, 1300 w/enc. December 9, 2008 Will Tully Bureau of Reclamation 11056 West County; Road 18E Loveland, CO 80537 RE: Windy Gap DEIS Dear Mr. Tully: I would like to begin by thanking the Bureau of Reclamation for this opportunity to comment upon the Windy Gap DEIS. This letter is being written to highlight the concerns and the strong objections of the Town of Grand Lake to the Windy Gap Firming Project. The Town of Grand Lake recognizes the need to plan for growth, and respects each of the Windy Gap participants for attempting to ensure that their constituents have adequate water supplies in the future. Furthermore, the Town believes that there is an avenue to work cooperatively and to help ensure that these communities meet future water demands, without asking such a sacrifice from the citizens of Grand Lake and Grand County.	
1	1. The County Stream Flow Management Plan should be completed before any firming projects commit to taking more water out of Grand County. The Public Hearing on October 9, 2008 helped to showcase many of the challenges that the citizens of Grand County have with the Windy Gap DEIS. To name a few, the applicant alleges that there will not be any significant new impacts based upon modeling projections; if this is the case, then any approvals should be conditioned so that any new impacts will be addressed. Furthermore, Grand County has been working on a Stream Flow Management Plan that is nearly complete, and once done it will outline the necessary stream flows needed for domestic, agricultural, recreational, in-stream and other uses. It is premature to grant any approvals prior to its completion; the Stream Flow Management Plan should be the mitigation for the Windy Gap Firming Project. Finally, the Moffat Tunnel Expansion Project will shortly be undertaken by Denver Water. These projects do not exist in a vacuum; two major trans-basin diversion projects out of Grand County should be given the utmost scrutiny as they interact together, mutually inclusive, versus as exclusive, non-related projects as they've been treated thus far.	1. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the WGFP alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and C-BT Project will continue to be operated in accordance with existing agreements and commitments.
2	2. The financial implications of the Windy Gap Firming Project (WGFP) to the citizens of Grand County, particularly Grand Lake, have been severely ignored or at best underscored. The guaranteed degradation of water clarity in Grand Lake will make this P.O. BOX 99, GRAND LAKE, COLORADO 80447-0099 PH. 970/627-3435 FAX 970/627-9290 E-MAIL town@townofgrandlake.com	2. Effects to water quality in Grand Lake would range from no change to about 6% for the various chemical and physical parameters evaluated for the action alternatives compared to No Action. No applicable information was found that would allow quantification of the incremental impacts on recreation, tourism, or the housing industry from changes in water surface area, clarity, and water quality

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2	area less attractive as a recreation destination. No consideration is given to tourists that come to Grand County to hike, ice-fish, site-see, bike, kayak or to private anglers. Furthermore, there is no attempt to measure tourist spending on lodging, restaurants, entertainment, shopping or fuel. Finally, there is no measurement attempt for the possible impacts to the housing industry, even though 2/3 of the homes in Grand County are second homes. Grand County is a tourist-driven economy, with water related activities being the main driver, followed in short order by the housing industry, so the true financial impacts of the WGFP should include these two major economic drivers.	for high elevation western lakes and reservoirs, especially for a water storage reservoir where water levels already fluctuate widely such as Granby Reservoir. Proposed nutrient mitigation measures, as described in Section 3.8.4 of the FEIS, would offset nutrient loadings to the Three Lakes. As a result, there would be a negligible impact to Grand Lake water quality and any potential impacts to lake recreation, tourism, and the local economy.
3	3. The increase in flow will cause a reduction in water clarity as stated under all option of the DEIS. With respect to the above considerations, no issue is more important to the citizens of Grand Lake than the health of the lake itself. From the inception of the Colorado Big-Thompson Project, Grand Lake has gone from a pristine natural lake with water clarity of 9.2 meters to an average of 2.7 meters of clarity in 2006. In 2007, concerns about blue green algae and more specifically microcystin toxin, caused the Public Health Nurse and the Town of Grand Lake to post the public beach and boat launches with warnings about drinking and swimming in Grand Lake. Just this summer, the DOW positively tested for Zebra and Quagga Mussels in Grand Lake. Contrast all of these indications of continued degradation and negative impacts of the CB-T project with the actions of Grand Lake and Grand County. Beginning nearly 30 years ago, concerned with the effluent from the Town's sewer system, the community organized and established the 3 Lakes Water and Sanitation District to eliminate waste water effluent from the lake. Throughout the years, concerned citizens have volunteered to collect secchi depth readings and have helped to monitor the continued degradation of Grand Lake. In 2003, the community helped establish the Grand County Water Information Network to better understand the limnology of the 3-lakes area; the Town has been one of the many funding partners from the inception of this group. The Town has also participated in funding for toxin monitoring, purchased a street sweeper in 2008 and most notably, is working to address a major overhaul of the Town's storm sewer with a filtration system (not required by any state or federal agency).	To minimize the adverse effects on Granby Reservoir water levels as a result of prepositioning, the Subdistrict has proposed to modify prepositioning operations under the Preferred Alternative. To maintain greater storage in Granby Reservoir, the Subdistrict would reduce, and in some instances curtail, C-BT deliveries to Chimney Hollow Reservoir when water levels in Granby Reservoir are projected to fall below an elevation of 8,250 feet (about 340,000 AF of storage). If projections indicate Granby Reservoir would fill, C-BT water would be delivered to Chimney Hollow Reservoir to maintain that reservoir full to the extent possible. C-BT water in Chimney Hollow Reservoir would then be exchanged with Windy Gap water diverted to Granby Reservoir. Additional discussion of the effects of modified prepositioning is found in Section 3.5.4 in the FEIS. 3. See response to Comment No. 2 on nutrient mitigation to offset nutrient loading from additional Windy Gap pumping, as discussed in Section 3.8.4 of the FEIS.
4	4. The Town and Citizens of Grand Lake are spending a disproportionate amount of money compared to the East Slope citizens to protect our water quality. The Town of Grand Lake has also made headway in policy formation as it relates to water quality in Grand Lake. In 2004, the Town adopted a wellhead protection plan. The Town has also adopted a 30' stream and lake setback requirement on all construction, has worked with the Army Corps of Engineers on many projects affecting Grand Lake, including a drainage improvement project at the Town beach in 2008. The Town is also currently drafting new Best Management Practice guidelines for storm drainage, which will apply to all land use procedures as well as to building permits, and should help to prevent any new storm water inputs into Grand Lake. At a population of only 469 residents, the abovementioned projects are gigantic from a per capita perspective. In 2008, between the street sweeper ($18,000) and the drainage improvement project at the beach ($15,000), combined with the storm drain filtration	4. See response to Comment No. 2 regarding mitigation measures to reduce nutrient loading from the WGFP. Modification in the operation of the C-BT is beyond the scope of the WGFP EIS. Reclamation and the Northern District are currently evaluating how modifications in the operation of the C-BT project could improve water quality in Grand Lake. These ongoing efforts, plus water quality studies of C-BT operations, would continue to evaluate opportunities to improve Three Lakes water quality.

Com-ment	Letter #222	Response
4	project slated for spring 2009 ($260,000), each citizen will pay $625 of their taxes towards Grand Lake water quality in a matter of two years. While the burden is enormous, water quality is and will continue to be the largest priority for the community. What is disheartening though is that all of these efforts are unlikely to make a significant improvement to the water quality of Grand Lake if the operations of the CB-T project continue to go unabated, much less if there is expanded pumping from WGFP. Fortunately though, there are avenues to lessen the impacts of the CB-T and WGFP on Grand Lake and to help share the burden of the project with the WGFP participants.	
5	5. The DEIS should contain more requirements for any East Slope municipality receiving water in the area of water conservation. Each participant should be required to implement water conservation measures in their own communities that meet certain performance standards. At a minimum, water metering with stratified rates for higher users should be a standard practice in each community. Furthermore, any aged infrastructure should be replaced as water losses due to even minor water line leaks can be substantial. Finally, there is almost an endless array of practices that can be implemented to preserve water, such as grey water reuse, xeriscaping, regulating against Kentucky Bluegrass and other thirsty non-native vegetations, and encouraging other conservation measures at home. Taking more water out of the Colorado River basin prior to exhausting these types of measures is unfair to Grand County.	5. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict .
6	6. Re-routing the CB-T water around Grand Lake should be considered as a mitigation to prevent further degradation. The Scoping Study for the 3-Lakes Water Quality conducted by McLaughlin Rincon in 2006 considered alternatives to pumping water from Shadow Mountain Lake through Grand Lake, with the overreaching goal of bypassing Grand Lake and eventually restoring Grand Lake to its original grandeur and water quality. The three Grand Lake by-pass options ranged from an estimated cost of $14 Million (bypassing Grand Lake only) to $60 Million (bypassing Shadow Mountain and Grand Lake)—a 2006 budget estimate. With approximately 750,000 users of CBT water, implementing either alternative would result in a per capita cost for all CBT users of $19-$80; compared to the $625 that each Grand Lake resident will pay in the years of 2008-2009, it seems like a very fair compromise to make since it would address both past transgressions and the proposal at hand.	6. Modifications in C-BT facilities, such as rerouting C-BT water around Grand Lake, are beyond the scope of the proposed WGFP. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.
7	In conclusion, the Windy Gap DEIS is insufficient in its scope; the Bureau should hold the applicant to a very high standard since the ramifications of implementation of this project are far reaching and could be extremely detrimental to a premier watershed and the community that hosts it. Grand County and Grand Lake have been negatively impacted by the CB-T project from its inception, and this project as proposed promises more of the same. There are many mitigation measures that can and should be considered prior to any approvals, and the participants in this project should be required to make some sacrifices as all sacrifice thus far has been borne solely by the citizens of Grand County.	7. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. A summary of mitigation measures is also included in Section 3.25 of the FEIS

Com-ment	Letter #222	Response
	I appreciate the possibility to comment on this project, and look forward to working with the Bureau of Reclamation, Corps of Engineers, Northern Water and Project Participants in the future towards a result that benefits everyone. On behalf of the Town and its Lake, Judy M. Burke Mayor cc: The Honorable Ken Salazar, U.S. Senator The Honorable Mark Udall, U.S. Congressman (Senator-Elect) The Honorable Jared Polis, U.S. Congressman-Elect The Honorable Bill Ritter, Governor The Honorable Dan Gibbs, Senator The Honorable Al White, Representative (Senator-Elect) The Honorable Randy Baumgardner, Representative-Elect The Honorable Gary Bumgarner, Chair The Town of Winter Park The Town of Fraser The Town of Granby The Town of Kremmling Vaughn Baker, Superintendent RMNP NWCCOG-QQ	

Com-ment	Letter #361	Response
1	WGFP 361 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Judy Burke MS. BURKE: Good evening. My name is Judy Burke -- that's B-u-r-k-e -- and I am the mayor-elect of the town of Grand Lake. I think you can tell from those who have already spoken this evening that the town of Grand Lake, the people around the lake of Grand Lake, and the people of Grand County are passionate about their water. And I think that you will see that most of the comments this evening point out that we are passionate about that water and how it's used. Grand Lake is a very small community. I represent 469 people, as well as many of the other residents of the county of Grand. Grand Lake was established back when the Indian tribes camped around the crystal-clear waters of what they called then "Spirit Lake," which is now called Grand Lake. From those early days, the residents of Grand County knew and appreciated the value of clear, deep mountain waters of Colorado's largest natural lake. You know, things really haven't changed much from those days, except that our lodge pole forests have been decimated by the mountain pine beetle, our lakes are now home to invasive mussels, and our climate is now as windy as is the Kansas prairie. Each of these things have affected our tourist industry, our economy, and our quality of life. The death of our forests have created the threat of catastrophic wildfires, which in turn will leach soils into our watershed and destroy our quality of life, while our lakes are turned into green sludge by algae created by water being pumped through our lakes. Now the Windy Gap Firming Project promises to pump more of our water through Grand Lake, further reducing its clarity. Many have mentioned this evening the 1937 Senate Document 80, which actually set forth the regulations for the CBT project. And since the Windy Gap Firming Project proposes to utilize the CBT facility, and, therefore, it too should comply with the terms of Senate bill -- or Senate Document 80, including the preservation of the scenic attractions of Grand Lake. The draft EIS that we have heard about this	1. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

Comment	Letter #361	Response
2	evening uses a so-called Three Lakes Water Quality Model to evaluate the project's impact on Grand Lake water quality, including its clarity. The model concludes that there will be mostly minor negative changes in Grand Lake quality. In other words, less than a four percent reduction in the secdid (ph) depth. How can this be a logical conclusion, when already we see significant reductions in clarity when pumping takes place and this project would increase pumping? We see -- not by models, what it does to our lakes, but by walking out to our lake's edge and looking into the clear waters -- that the models are wrong, asking wrong questions that lead to wrong conclusions. The Town of Grand Lake asks the 60-day extension be granted. Thank you.	2. Yes, the WGFP alternatives would increase the amount of water pumped through the Farr pumping plant and there is estimated to be a small reduction in Grand Lake clarity due to increased nutrients as a result of the WGFP. Differences reported in the EIS are due only to the changes associated with the Windy Gap Firming Project. To reduce its contribution to nutrient loading and clarity concerns in the Three Lakes, the Subdistrict would be required to implement a nutrient reduction program to offset the anticipated nutrient loading to the Three Lakes system as a result of the WGFP. The proposed nutrient mitigation measures are described in Section 3.8.4 of the FEIS. Therefore, there should be a negligible impact to Three Lakes clarity as a result of the WGFP. Point and nonpoint source nutrient mitigation measures also would provide a year-round improvement in water quality in portions of the Fraser River, Willow Creek, and the Colorado River.

Com-ment	Letter #369	Response
	WGFP 369 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Shane Hale MR. HALE: Hello, I'm Shane Hale, H-a-l-e. I'm the town manager of Grand Lake, and I stand here tonight, not only in that official capacity, but also, like most people here, as a citizen in this county. In addition to thanking you for this opportunity, I would like to start out by asking you for the 60-day extension to the comment period. The document is 572 pages long; it is very complicated; and, given the fact that this project began in 2003, I don't see what harm 60 more days will do. Grand Lake does want to work with our East Slope neighbors, Broomfield and Fort Lupton. We certainly understand their need to provide water for their constituents, but we also believe that common ground can be found in achieving these goals without negatively impacting Grand Lake and Grand County. With that as a background, I believe this draft EIS seems woefully incomplete in addressing the negative impacts that this firming project will cause. Specifically, there are four areas that I want to touch upon, one of which have already been touched upon: Grand Lake water quality, the socioeconomic impact, recreational impacts, and impacts to the fisheries.	
1	For the water quality impact, the DEIS used a model called the Three Lakes Water Quality Model, which we have already talked about. It did conclude that that it will have a four percent reduction in seddid (ph) depth. That does defy common sense. We know that, in 1941, Grand Lake had 9.2 meters of clarity. In 2006, we had 2.7 meters of clarity, 85th percentile. And even more recently, as Mr. Stahl alluded to, we saw no noticeable difference immediately when the Bureau pumped and when the the Bureau stopped pumping. So to say that there is only a four percent reduction just defies common sense.	1. In 1941, the C-BT Project did not exist and there was no pumping from the Colorado River into the Three Lakes system. In addition, there has been substantial development, roads, and building in the Three Lakes watershed that contribute erosion and nutrient loading to the lakes. The WGFP EIS is focused on the incremental impacts of anticipated changes to the Three Lakes' water quality as a result of implementing the WGFP, not impacts due to C-BT operations and other sources. The WGFP impacts are compared to existing conditions, which can be described by recent data (including the Secchi-disk depths referred to by the commenter
2	Next, this only measures impact of fishing, camping and boating when it talks about the socioeconomic impacts. And all three of these even seem downplayed. For fishing, it only looked at the pump house reaches, and it only applied to commercial uses. I can tell you that I have fished many times this year -- and if my mayor is here, I'm not going to say tons of times -- but I have fished this year.	2. Analysis of data collected for the WGFP EIS indicates that hydrological changes are unlikely to adversely impact sport fishing under any alternative. This is based on both the timing of flow changes and the results of the aquatic resources analysis, which determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. The recreation analysis only presents commercial boating and fishing data for the Gore Canyon/Pumphouse reach of the Colorado River because that is the reach from which there is available data from the BLM. The economic effects of flow changes on commercial boating uses are described and quantified in the Socioeconomics section. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in Section 3.19.2.3 of the FEIS.

Com-ment	Letter #369	Response
2 3	Not once have I fished in the pump house reach, not once with a commercial outfitter, and, yet -- let's see. I'm fairly sure that I bought these glasses, I think I bought this hat, and I'm pretty sure I bought these Band-Aids that you still see up here, so I have spent some money there this year. And, yet, none of those impacts are captured in this. It only talks about outfitters and a region of the river that I don't think I have ever fished. Next, for boating, the EIS concedes the impact of Grand Lake and Shadow Mountain may create diminished recreation experience, but has no data as to $169,700,000 in Grand County. It was $23 million in Grand Lake, and $900,000 in sales taxes in that amount of time. So our entire economy is contingent upon Grand Lake being clear. And since I'm out of time -- I'm sorry about that. In conclusion, I would ask that you grant 60 more days. I would ask that you address issues that have been brought up, all these issues. And finally that the Windy Gap Firming Project comply with Grand County Stream Management Plan. Thank you.	3. Assuming that the comment means the economic impact on the Town of Grand Lake from impacts on water clarity were not quantified, we were unable to find any information to quantify the incremental impacts on recreation and visitation from changes in water clarity for a high elevation western water body such as Grand Lake. However, it is not anticipated that there would be a measurable economic impact from the small change in water clarity that would occur under any of the alternatives (-3.8% Secchi-disk depth, see Water Quality section of FEIS). However, proposed nutrient mitigation measures (see Section 3.8.4 of the FEIS) would offset potential loadings from the WGFP into the Three Lakes. As a result of these measures, there would be a negligible, if any, effect on Grand Lake, Shadow Mountain, and Granby Reservoir water quality or clarity as a result of the WGFP. Proposed modifications to prepositioning (see Section 3.5.4 of the FEIS) also would maintain higher water levels in Granby Reservoir than originally proposed in the DEIS, which would reduce the potential for recreation impacts.

Com-ment	Letter #402	Response
1 2	WGFP 402 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Tom Weydert MR. WEYDERT: My name is Tom Weydert. That's W-e-y-d-e-r-t. I am a trustee for the Town of Grand Lake. And I don't want to go through a lot of information that's already been covered this evening. One example that I do want to emphasize is that, in California, there are two wonderful examples of what we're dealing with here in Colorado. One is called Owens Lake, and the other one is called Lake Tahoe. Owens Lake is now a dry desert bed because all the water was taken by the city of Los Angeles. Lake Tahoe, in the 1960s and 1970s, had many of the same water clarity issues that Grand Lake is facing. If you take a look at that now, because of the interstate between California and Nevada and the federal government, it is one of the clearest, most pristine lakes that you will find, and which Grand Lake used to be, and we can get it back. I do want to emphasize that I believe that we should extend for 60 days for all written comments. I think that we need to make it imperative that conservation by East Slope recipients be mandated and that we wait until we find out the final information on the Moffat Firming Project and the Grand County Stream Management Plan. And at this time, in all fairness, I will yield the rest of my time for any overages that Ms. Curran might have had.	1. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. 2. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommend streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS to address other adverse water quality effects of the WGFP may help meet some of the goals of the SMP.

Com-ment	Letter #364	Response
1	WGFP 364 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Hershel Deputy MR. DEPUTY: My name is Hershel Deputy, D-e-p-u-t-y. I'm the mayor of Hot Sulphur Springs. I would like to start by saying that in 2008 our town has endured a spring and a summer of no water, bottled water, boiled water, and no outdoor water use. And I can tell you that we understand what life without water is, and it's not very pretty. I left a meeting earlier this evening where we are trying to explain to our residents of our town why we need to raise the sewer and water rate 47 percent. It's so that we can continue to meet the state safe-drinking regulations and the discharge regulations. And this is increasingly difficult to do given the additional diversions and the subsequent reductions in flow of the Colorado River. It is also increasingly difficult to treat our drinking water given the sporadic fluctuations of the water quality in the Colorado River. In addition to recreation and wildlife needs, our town relies solely on the Colorado River for our drinking water. We live and work in Grand County, and we take the stewardship of the Colorado River very seriously. And the continued reductions in flow of the river and the reduced quality threaten our town's ability to provide safe drinking water for our community. We would respectfully ask for an extension for the review period so that we can comment on this further. Thank you.	1. Hot Sulphur Springs' water right to divert water from the Colorado River is senior to the Windy Gap water right to divert. Junior water rights cannot legally impair senior water users. In 1980 as part of the original Windy Gap Project, the NCWCD compensated the Town of Hot Sulphur Springs with $150,000 to improve their WTP and $270,000 to improve their wastewater treatment plant (WWTP). According to Internet sources, the Hot Sulphur WTP is having difficulty meeting its effluent limitation for turbidity and is currently seeking stimulus money for improvements to meet current requirements of its NPDES permit. The high turbidity levels observed near the WTP intake in 2008 were not related to 2008 Windy Gap diversions, but were due to point and/or nonpoint discharges to the river upstream of Hot Sulphur Springs. The WGFP would not increase turbidity levels in the Colorado River. Windy Gap Reservoir provides some settling of coarser sediments, which would reduce turbidity. The WGFP would result in a small increase in specific conductivity in the river, but this should not impair Hot Sulphur Springs' drinking water treatment facility's ability to meet drinking water standards or increase its cost for treatment. In 2008, the lowest flow of the Colorado River at Windy Gap during the spring and summer months was about 75 cfs, which occurred in March. For the Hot Sulphur Springs WWTP, the calculated acute and chronic low flows for the plant are 38 cfs and 59 cfs. The Windy Gap Project currently curtails Colorado River diversions when flows reach 90 cfs below Windy Gap Reservoir and would continue to do so under the WGFP; therefore, the WGFP does not and would not impact Hot Sulphur Springs' WWTP CDPS permit conditions. Streamflow reductions to below 90 cfs in the Colorado River are unrelated to the Windy Gap Project. To mitigate WGFP nutrient loadings to the Three Lakes, the Subdistrict is proposing mitigation measures that would reduce nutrient discharges from the Fraser WWTP and several nonpoint sources. These measures would provide year-round improvements to Colorado River water quality at Hot Sulphur Springs.

Comment	Letter #227	Response

Town of Kremmling

P.O. Box 538
Kremmling, CO 80459-0538

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Tully

11/19/2008
Windy Gap Firming Project
Town of Kremmling Comments

Thank you for this opportunity to comment on the Windy Gap Firming Project. The following are the concerns and recommendations from the Mayor, Trustees and staff of the Town of Kremmling.

1 The "no action" alternative is not acceptable, as the Town believes the current system is broken.

2 Reduction of flows below Windy Gap in July, August and September are not acceptable as flows are already too low.

3 Low flows and higher temperatures affect fish habitat and fishing is an important economic generator for our community.

4 The negotiations taking place now for the endangered fish water may help some of these issues of low flows during the summer months and should be incorporated.

5 Grand County's Stream Management Plan will help identify needs for healthy fish habitats and should be incorporated into the environmental impact statement.

6 Recreational tourism is Grand County's main economic generator. The County and Municipalities can not afford even a marginal decrease in these dollars.

7 July, August and September water temperatures below Windy Gap are already too high. There are blue-green algae and aquatic plants growing and an increase in temperature may boost their growth. Algal toxins may in turn become a problem and need to be monitored. Reduced flushing flows can also exacerbate the problem.

8 Water quality degradation could lead to treatment issues for communities. Small communities can not afford increased water treatment costs. The Town has an infiltration gallery just above the "USGS site near Kremmling" in the Colorado River. Water quality needs to be monitored and if, "high values" are detected the pumping may need to stop and/or water released from Windy Gap.

Again, thank you for this opportunity to comment. We look forward to working with all parties to find solutions to these concerns.

Thomas A. Clark, Mayor

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1. Thank you for your comment.

2. Thank you for your comment.

3. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP includes mitigation of temperature effects in the Colorado River and is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).. The aquatic resource section was revised in the FEIS to include additional discussion of impacts to fish from the alternative actions. Aquatic resource mitigation is discussed in Section 3.9.4 and temperature mitigation in 3.8.4.2 of the FEIS.

4. A separate Environmental Assessment (Colorado Water Users' Commitment to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River) evaluating releasing 5,412 AF from Granby Reservoir for Colorado River endangered species was released by Reclamation in September 2011. As proposed, the releases for endangered fish in the late summer/fall flow would improve flows and temperature during the time of the year when Colorado River flows are typically low. The "10825 Project" was added to the reasonably foreseeable actions in the WGFP FEIS and was used in the cumulative effects evaluation on stream temperature in Section 3.8.3.

5. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or

		minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS such as bypasses to improve Colorado stream temperature, reductions in nutrient loadings to the Colorado River and Three lakes, and stream channel habitat enhancement would help meet some of the goals of the SMP. 6. Thank you for your comment. 7. Proposed mitigation measures to offset nutrient loading to the Three Lakes, as described in Section 3.8.4 of the FEIS, also would improve water quality in the Colorado River from existing conditions. Existing bypass commitments and flushing flow requirements would be maintained and additional analysis indicates that flows would be adequate to maintain to aquatic habitat. In addition, the FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. See response to Comment No. 3 on temperature mitigation. 8. According to the Colorado Water Quality Control Division, Kremmling's WWTP discharges to ground water in the Muddy Creek drainage. Minor changes in the stage of the Colorado River, which is about 3,000 feet from the nearest infiltration gallery, would not affect ground water levels or the treatment of wastewater or discharge of wastewater at the infiltration galleries.

Com-ment	Letter #1101	Response

Gary Suiter
Interim Town Administrator
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WGFP 1101

TOWN COUNCIL
Mayor – Gordon "Hawkeye" Flaherty
Mayor Pro Tem – George Brodin
Councilwoman – Shelley Bellm
Councilman – Jerry Bumgarner
Councilwoman – Lorraine Haslee
Councilman – Aggie Martinez
Councilman – Matt Scherr

December 29, 2008
Via Email and U.S. Mail

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Will Tully, Bureau of Reclamation
11056 W. County Road 18E
Loveland, CO 80537
(970) 663-3212 (fax)
wtully@gp.usbr.gov

Re: Windy Gap Firming Project DEIS

Dear Mr. Tully:

On behalf of the Town of Minturn, I am providing comments on the Windy Gap Firming Project ("WGFP") Draft Environmental Impact Statement dated August 2008 ("DEIS") prepared by the U.S. Department of the Interior, Bureau of Reclamation ("Reclamation"). Minturn's comments are set forth on Attachment 1 hereto. In addition, Minturn endorses the comments of Grand County as set forth in the letter dated December 29, 2008 from Barbara J.B. Green.

Sincerely,

Gary Suiter
Interim Town Administrator
Town of Minturn

cc: Hawkeye Flaherty, Mayor
Minturn Town Council
Allen C. Christensen
Anne J. Castle
Arthur B. Ferguson

Com-ment	Letter #1101	Response
1	Will Tully, Bureau of Reclamation Page 2 **ATTACHMENT 1** **Comments of Town of Minturn on WGFP DEIS** **1. The Proposed Action Would Violate Senate Document 80 And The Blue River Decree.** Pursuant to the regulatory requirements set forth in the Council of Environmental Quality regulations for implementing the National Environmental Policy Act, the DEIS must discuss federal and state law constraints on operation of the WGFP. The environmental consequences section of a DEIS shall include a discussion of "possible conflicts between the proposed action and the objectives of Federal, regional, State, and local . . . land use plans, policies and controls for the area concerned." 40 C.F.R. § 1502.16 (2008). The DEIS must also "discuss any inconsistency of a proposed action with any approved State or local plan and laws. . . . Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law." *Id.* at § 1506.2(d). Thus, Reclamation must address any conflicts and inconsistencies between the proposed action and federal and Colorado law in the DEIS. Minturn believes that the DEIS does not sufficiently consider such conflicts and inconsistencies. Senate Document 80 is the legal foundation of the Colorado Big Thompson ("CBT") Project. Senate Document 80 describes the CBT facilities and provides conditions to protect the beneficiaries of those facilities, including west slope water users. Senate Document 80 contains requirements for use of CBT water by the Northern Colorado Water Conservancy District as a supplemental supply on the east slope, use of Green Mountain Reservoir for west slope beneficiaries, and provisions that specifically protect the headwaters of the Colorado River system in Grand County. The DEIS fails to examine whether the proposed action would violate Senate Document 80 or the decree for the CBT Project facilities dated October 12, 1955 of the U.S. District Court for the District of Colorado in Consolidated Case Nos. 2782, 5016, and 5017 ("Blue River Decree"). Instead, the DEIS expressly states that this determination will be made at a later time: "Prior to entering into a contract that would allow use of CBT excess capacity, Reclamation must determine that the excess capacity contract is consistent with the provisions of Senate Document 80." DEIS, § 1.10.2.	1. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
2	The DEIS does not examine the following conflicts and inconsistencies between the proposed action and Senate Document 80 and the Blue River Decree: a. The proposed action would allow CBT water to be stored in Chimney Hollow Reservoir, a non-federal reservoir that is not authorized by Senate Document 80 or the Blue River Decree. The only reservoirs that are authorized for storage of CBT water on the Front Range are Mary's Lake Reservoir, Lake Estes, Horsetooth Reservoir and Carter Lake. *See* Senate Document 80 at 18-21; Blue River Decree, Findings of Fact and Conclusions of Law at ¶ 14; Blue River Decree, Final Decree at p. 2. Connection of	2. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

Com-ment	Letter #1101	Response
	Will Tully, Bureau of Reclamation Page 3	
2	the WGFP facilities to CBT facilities and storage of CBT water in non-project facilities would require Congress to amend Senate Document 80.	
3	b. Because CBT water is not decreed for storage in Chimney Hollow, *see id.*, CBT water may only be lawfully stored in Chimney Hollow if the United States first obtains a change of water right to add Chimney Hollow as a decreed storage facility for the CBT Project. *See* C.R.S. § 37-92-103(5) (2008) (stating that change of water right by definition includes "a change in the place of storage, . . . [and] a change from a fixed place of storage to alternate places of storage)."	
4	c. The proposed action would create an additional 90,000 acre feet of storage capacity for CBT water on the Front Range, and would therefore allow the CBT Project to yield more water than has historically been produced through the facilities authorized by Senate Document 80 and the Blue River Decree.	
5	d. The proposed action must comply with the Water Supply Act, 43 U.S.C. 390b(d), which requires Congressional approval of any modification to a federal reservoir project that "would involve major structural or operational changes." *Id.* Storage of CBT water in a new, non-federal reservoir on the East Slope clearly constitutes a major operational change to the CBT Project, and could only be accomplished if Congress approves of such storage. Thus, Congressional approval should be a precondition to implementation of the proposed action.	
6	e. Senate Document 80 imposes upon Reclamation an affirmative duty to operate the CBT Project and its facilities in a manner that is protective of the Colorado River fisheries. Not only does the DEIS fail to provide the necessary analysis of impacts to aquatic resources within the reach of the Colorado River evaluated, it entirely fails to analyze the impacts of WGFP on aquatic resources below Gore Canyon. **2. The Proposed Action Would Violate Colorado Water Law.**	
7	The DEIS acknowledges that Windy Gap diversions would be constrained by "decree limitations," but does not describe these limitations in any detail. DEIS § 3.5.2.5. No other provisions of Colorado law are mentioned. The DEIS does not address the following conflicts and inconsistencies between the proposed action and Colorado water law:	
8	a. The proposed action must comply with the Water Conservancy Act, C.R.S. § 37-45-101, *et seq.* § 37-45-118(1)(b)(II) requires that any project that exports water from the natural basin of the Colorado River include mitigation to water users within the Colorado River basin to assure that present and prospective uses of water will not be impaired nor increased in costs to the west slope water users. The Subdistrict, the River District and other West Slope parties entered into the "Agreement Concerning the Windy Gap Project and Azure Reservoir and Power Project," dated April 30, 1980, as amended March 29, 1985 ("Azure/Windy Gap Agreement"), to provide the requisite compensation to the West Slope for the original Windy Gap Project. The Azure/Windy Gap Agreement does not contemplate the construction of a new facility on the Front	3. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 4. As explained in Section 3.5.2.3 under the subsection C-BT Deliveries, C-BT Project demands and deliveries would not change as a result of implementation of any of the WGFP alternatives. Under the Proposed Action, the additional 90,000 AF of storage capacity on the East Slope would be used to firm Windy Gap supplies and would not result in an expansion of C-BT diversions. Under prepositioning, when total C-BT contents in Granby and Chimney Hollow reservoirs reach the volumetric limit of 539,758 AF, which is the physical capacity of Granby Reservoir, the C-BT Project would stop diverting water from the Colorado River for storage in Granby Reservoir. This would prevent expansion of C-BT Project diversions, because it imposes the same constraint as if C-BT water was stored in Granby Reservoir, as opposed to a portion being stored in Chimney Hollow Reservoir. 5. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 6. The aquatic resource section of the FEIS includes an analysis of impacts to aquatic habitat downstream of the Blue River confluence, based on hydrologic changes at the Kremmling gage. Section 3.9.3 of the FEIS contains additional discussion on the impacts to aquatic habitat. Results of the analysis impacts to fish habitat for the below the Blue River location are indicative of likely impacts for several miles below the Colorado River. Average monthly Colorado River flow decreases less than 7 percent from existing conditions compared to the Proposed Action, and less than 3 percent annually. Because hydrologic and water quality impacts of the WGFP on the Colorado River diminish below the Blue River confluence, measurable impacts to aquatic resources are unlikely farther downstream.

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8	Will Tully, Bureau of Reclamation Page 4 Range for storage of Windy Gap water rights. Because the proposed action would allow an expansion of the yield from the Windy Gap Project, the mitigation requirements contained in the Water Conservancy Act have not been satisfied with respect to the expanded yield. *See* C.R.S. § 37-45-118(1)(b)(II). The Subdistrict should be required to comply with these mitigation requirements as a precondition to implementation of the proposed action.	The FEIS includes additional mitigation measures for aquatic resources. , The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) approved it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Sections 3.8.4 and 3.9.4 of the FEIS include a description of mitigation measures for aquatic resources.
9	b. The proposed action would result in the undecreed storage of Windy Gap water rights in Chimney Hollow. The Windy Gap water rights are decreed for storage in two reservoirs on the West Slope – Windy Gap Reservoir and Jasper Reservoir. Storage of Windy Gap water rights in a new facility on the Front Range would violate the Windy Gap water rights decrees. Such storage would only be lawful if the Water Court approves a request to change the existing Windy Gap water rights to allow for storage in Chimney Hollow. *See* C.R.S. § 37-92-103(5). The Subdistrict cannot avoid this requirement by filling a new reservoir under the direct flow water rights decreed as part of the Windy Gap Project. *See City & County of Denver v. NCWCD*, 276 P.2d 992, 999 (Colo. 1955); *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 26 n.12 (Colo. 1996).	7. Windy Gap water rights, agreements and contracts that constrain Windy Gap diversions and operations are discussed in Section 3.5.1.3 of the FEIS, and are described in detail in Section 5.0 of the WGFP Water Resources Technical Report (ERO and Boyle 2007). The hydrologic model was developed in strict compliance with the existing water rights, agreement, and contracts that control the diversion and storage of Windy Gap water.
10	c. The proposed action would result in an unlawful expansion of the Windy Gap water rights. The Windy Gap Project includes conditional and absolute storage water rights for 1546.14 acre feet in Windy Gap Reservoir (445 acre feet of which has been made absolute) and 11,292 acre feet conditional in the Jasper Reservoir. Storage of water in the 90,000 acre foot Chimney Hollow Reservoir would exceed the amounts decreed to Windy Gap and Jasper Reservoirs, and would constitute an unlawful expansion of the Windy Gap water rights above the amount contemplated when the water rights were appropriated. Approval of a change of water right for the Windy Gap water rights is required.	8. Operation of the proposed project is within the limitations of the 1980 Azure Agreement and the 1985 Supplement to the 1980 Azure Agreement. These agreements rely on the Windy Gap DEIS and FEIS to describe the Project that is approved. Both the DEIS and FEIS discuss the use of approximately 90,000 acre-feet of storage on the East Slope, either as unused or leased storage (see DEIS, pg. IV-10) or "participant storage capabilities other than the C-BT Project (see FEIS, pg. IV-68). It has always been intended that storage on the East Slope would be a necessary part of the Windy Gap Project and the WGFP was proposed as a joint, regional project by the Participants to minimize the cost and environmental impacts of storage to realize the yield contemplated in the original Windy Gap Project. The proposed Project is consistent with the original agreements and underlying environmental reports including the 1980 Azure Agreement, 1985 Supplement to the 1980 Azure Agreement, the Windy Gap Carriage Contract, and the 1981 Windy Gap EIS and Record of Decision. In addition, the 1980 Azure Agreement and the 1985 Supplement to the 1980 Azure Agreement satisfy the Water Conservancy Act requirement by imposing limits on the diversion of water through the Adams Tunnel for the Windy Gap Project of up to 90,000 acre-feet of water in any one year, and an average of 65,000 acre-feet of water in any 10-year period. So long as these limits are respected, the West Slope is fully protected. The Subdistrict will limit diversions for the WGFP to comply with these limits.
	3. The DEIS Contains Insufficient Discussion of Cumulative Impacts.	
11	a. The DEIS should present a significant discussion of cumulative impacts and show much more detailed information regarding the full history of streamflows and stream depletions to this region, not just the flows averages before and after CBT.	9. See response to Comment No. 3.
12	b. The DEIS should include a more thorough discussion of CBT and Windy Gap operations on the West Slope, particularly existing and proposed exchanges, and how reservoir evaporation is being accounted for and managed.	10. See response to Comment No. 3.
13	c. A more detailed description of past water diversion projects and their resulting impacts (e.g., conditions before and after the CBT, the Windy Gap Project, and Denver Water's Moffat Collection System project) is necessary to understand how these conditions came about.	11. The affected environment discussion in the Surface Water Hydrology section of the EIS defines the condition of resources based on past and present actions and activities in the Colorado River basin, including the C-BT Project and other water diversions and uses. The cumulative effects analysis then adds the incremental effects of the Proposed Action with other reasonably foreseeable future actions,
14	d. Instead of using actual existing conditions as a baseline against which to measure impacts of the WGFP alternatives, the DEIS used a modeled stream flow regime. The modeled conditions show existing diversions from the original Windy Gap at an annual average of 36,000 a.f. on the average per year when in reality the diversions	

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		such as the Moffat Project, to assess likely effects. The same level of analysis was conducted for cumulative effects as for direct project effects. 12. The discussion of C-BT and Windy Gap operations on the West Slope is discussed in detail in the DEIS, and additional information was added in the FEIS as noted below. Section 3.5.2.3 provides a discussion of Windy Gap operations and how those operations affect the C-BT Project. Section 3.5.2.5 specifically addresses C-BT and Windy Gap Project operations at each major West Slope facility including the Adams Tunnel, Windy Gap, Granby Reservoir, and the Willow Creek Feeder Canal. A discussion of Windy Gap and C-BT exchanges under the Proposed Action was added in Section 3.5.2.5 of the FEIS under the subsection Windy Gap Diversions. Evaporative losses in Granby Reservoir, Shadow Mountain Lake, and Grand Lake are discussed in Section 3.5.2.3 under the subsection Loss of C-BT Water from Reservoir Evaporation. Evaporative losses in all C-BT reservoirs are charged to the C-BT Project regardless of the Windy Gap contents in that facility. However, Windy Gap is assessed a depletion fee of 10% of the Windy Gap water introduced into the Project Works as defined in the agreement between Reclamation and the Subdistrict for the introduction, storage, carriage, and delivery of Windy Gap water in the C-BT Project system. Reclamation believes this assessment compensates the United States for any increased evaporative loses in the C-BT Project system as a result of the storage of Windy gap water. Additional text has been added to Section 3.5.2.3 of the FEIS explaining evaporative losses at Granby Reservoir and accounting. 13. Additional information on past diversion projects were added to Section 3.5.1.4 of the FEIS. Table 3-1, which was added to the FEIS, summarizes the effects of historical upstream depletions at the Colorado River at the Windy Gap gage (09034250) for the 20-year period from 1985 through 2004. This period was selected because the Windy Gap Project came online in 1985; therefore, it includes the effects of all major upstream transbasin diversions (Grand River Ditch, C-BT Project, Moffat Project, and Windy Gap Project). 14. It is appropriate to assess effects due to the EIS alternatives based on a comparison against modeled existing conditions as opposed to historical conditions since the hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations. As discussed in Section 7.1 of the WGFP Water Resources Technical Report (ERO and Boyle 2007), hydrologic output associated with the action alternatives is not compared with historical hydrology for the following reasons:

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	Will Tully, Bureau of Reclamation Page 5	• Demands have changed considerably over the course of the study period, • Certain facilities and reservoirs were not in operation for the entire study period, and • River administration and project operations have changed over the study period.
14	were only 11,000 per year. Consequently, the significance of the impacts of the additional diversions associated with the WGFP are materially understated.	Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the Project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment.
15	e. The WGFP and Denver Water's Moffat Collection System project are cumulative actions. A single EIS analyzing the impacts of both projects is not a mere formality. Without such an EIS, there can be no assurance that Reclamation and the Army Corps of Engineers have, collectively, taken a hard look at alternatives to the simultaneous operation of the WGFP and Moffat Collection System Project, the cumulative environmental impacts of those two projects (with emphasis on the hydrology, water quality, and aquatic resources of the Colorado River), and measures to mitigate those impacts.	
16	f. The Shoshone call reduction needs to be examined more closely. The year the agreement with Denver Water concerning the Shoshone call went into effect (2003) was also the year of greatest diversion by the Windy Gap Project, at 64,200 af. The DEIS contains statements that Windy Gap will not divert during a dry year, but there is no analysis of the effects from the Shoshone call reduction.	
	4. The Modeling Used in the DEIS is Flawed.	
	a. There are significant concerns regarding the modeling used to evaluate West Slope impacts.	
17	i. The use of a monthly model may mask great fluctuations in water levels. A detailed daily model should be used to evaluate the projected new water yield from additional facilities and additional diversions, and then a separate monthly model should be used to evaluate the effects to the source area of the water supplies. The upper Colorado River basin can experience dramatic flow changes due to daily changes in water administration and the operations of several large-scale water facilities within the modeling reach.	The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.
18	ii. The DEIS says the model ends in 1996, and ignores the recent dry years like 2002 and following. This is a serious flaw in the determination of likely impacts, because the year of highest diversions by Windy Gap was in 2003, which followed the 2002 dry year.	
19	iii. The use of the long-term average daily flows to generate the factors to represent daily flows in all years, wet, average or dry, is inappropriate and may be highly inaccurate. The daily pattern of streamflows within a given month is not the same from year to year.	
20	b. The Kremmling gage was chosen as the downstream end of the Study Area because the majority of the effects to the Colorado River are expected upstream. While this is largely true for the WGFP, it is not true for some of the cumulative effects, such as Eagle County growth, Homestake diversions and the potential construction of Wolcott Reservoir. These would affect the WGFP area due to changes to the Eagle River	In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap

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		diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 15. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project, including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver reduced their demands after the WGFP hydrologic modeling was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects. 16. The Shoshone call reduction is sufficiently analyzed as a reasonably foreseeable action in Section 3.5.3.2 of the FEIS under the subsection Colorado River, and in Section 8.4.2.6 of the Water Resources Technical Report. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. The analysis is based on the terms and conditions of the current agreement, which is the best available information. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the WGFP would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked. 17. While a daily time-step was not used, daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir

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		outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D Model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the EIS alternatives. Because there are no hydrologic impacts from the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for nondrought conditions. Use of a single monthly model to evaluate both new water yield and the effects to the source area of the water supplies is reasonable and appropriate. 18. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002 and the addition of a WGFP reservoir would not change that

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		condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available, as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical with respect to Windy Gap yield than 2002. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. 19. See response to Comment No. 17. In addition to the long-term average daily flows; daily data for the entire 47-year study period for the USGS gages on the Colorado River below Granby Reservoir, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and for the gage on Willow Creek below Willow Creek Reservoir was generated using historical daily data for nearby USGS gages. See Section 4.2.4 in the Water Resources Technical Report for a detailed discussion of the process used to disaggregate monthly model output. The daily disaggregation factors were applied to the monthly flow data at the corresponding gage to develop daily flows.

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20	flows and Shoshone calls. The active modeling area should be extended downstream to the Dotsero stream gage. This would incorporate the anticipated depletions upstream of Shoshone from projected growth in the Eagle River basin, and would allow for an evaluation of the effects from the construction of Wolcott Reservoir as a source for the 10,825 water dedicated to the Colorado River endangered fish species.	20. The CDSS model, which was used to evaluate hydrologic effects on the West Slope, covers the Colorado River drainage from the headwaters to the Colorado-Utah state line. Therefore, the active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage near Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10% under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River near the Kremmling gage. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. Regarding future potential projects downstream of Kremmling, see Section 8.1 of the Water Resources Technical Report for a discussion of the criteria for identifying reasonably foreseeable actions. Wolcott Reservoir was not considered reasonably foreseeable and is currently not a component of the selected alternative to supply 10,825 water.
	5. The DEIS Contains Inadequate Discussion of Mitigation for the Aquatic Environment.	
21	a. The DEIS fails to provide the necessary analysis of impacts by the WGFP to aquatic resources within the reach of the Colorado River evaluated, and the analysis of impacts on the aquatic resources below Gore Canyon is entirely missing. This is particularly disturbing in light of the ongoing stakeholder effort to develop a stream management plan to protect the fishing values of the river down to State Bridge, as an alternative to Wild & Scenic Rivers Act designation by Congress.	21. See response to Comment No. 6.
22	b. Elevated stream temperatures are a significant concern in the upper Colorado River. As the DEIS indicates, stream temperature at various locations periodically exceed levels deemed to be safe for the fisheries. The DEIS fails to evaluate: i. How incremental increases in stream temperatures caused by operation of the WGFP and other reasonably foreseeable projects will impact aquatic life; ii. How stream temperatures will increase over a series of days iii. The potential for stream temperature conditions that have chronic impacts on aquatic resources	22. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.
23	c. The water quality model on which the DEIS relies generates predictions based on conditions for the single modeled day. It does not predict what conditions will be at other times. As a result, the DEIS fails to take a hard look at the potential impacts of WGFP and reasonably foreseeable projects on the aquatic resources of the Colorado River.	
24	d. The DEIS's surface water quality analysis attempts to compare modeled stream temperature increases due to operation of WGFP and other reasonably foreseeable projects to the State Standards. Unfortunately, it uses the interim standards of 2006, not the final standards adopted in 2007 by the Water Quality Control Commission. As a result, the DEIS entirely fails to evaluate the extent and frequency with which operation of WGFP and other projects will increase temperature levels beyond the acute, lethal tolerance levels reflected in the Commission's regulation adopted in 2007.	
25	e. The DEIS fails to evaluate aquatic life impacts below the confluence of the Blue River.	
26	**6. The DEIS Fails To Properly Incorporate Water Conservation.**	

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26	Will Tully, Bureau of Reclamation Page 7 a. Although the DEIS rejects water conservation as an alternative, it does not explain why water conservation should not be proposed as an additional mitigation measure. The DEIS does, after all, recognize that "[t]o meet future water requirements will require continued improvements in water conservation in addition to the proposed WGFP." b. In order to minimize the amount of water removed from the Colorado River at the Windy Gap Pumping Plant and Reservoir, each of the eastern slope participants should be required, to the maximum extent feasible, to implement reuse programs and make successive use of the foreign water. c. WGFP participants should also be required to have "measurable" water conservation plans in place. 4413915_1.DOC	23. See response to Comment No. 22. 24. The interim standards were incorrectly noted in the DEIS. The standards apply to the Colorado River between Granby Reservoir and the confluence with the Roaring Fork, as opposed to between the Fraser River confluence and the Troublesome Creek confluence. The chronic interim standard was an MWAT of 18.2°C. In 2008, after the DEIS was distributed, the final standards were adopted for the basin, setting the chronic MWAT at 18.2°C. The discussion in the DEIS (p. 3-96) compares modeled results to an 18.2°C MWAT above Troublesome Creek and a 20°C MWAT below Troublesome Creek. Although the comparison was incorrect below the Troublesome Creek confluence, the conclusion is the same. There would not be chronic temperature exceedances below Troublesome Creek. The discussion in this section of the FEIS has been adjusted to be consistent with the current standards. See response to Comment No. 22. See response to Comment No. 22 for additional temperature modeling and mitigation. 25. See response to Comment No. 6. 26. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Comment	Letter #253	Response
1	December 2, 2008 ENV 600 CT Bureau of Reclamation Attn: Will Tully 11056 W. County Road 18E Loveland, CO 80537 Tully 1300 CWT 7/18/08 RE: Windy Gap Firming Project Draft Environmental Impact Statement To Whom It May Concern: Please accept this letter as public comment from the Winter Park Town Council regarding the Windy Gap Firming Project (WGFP) Draft EIS. The following is a list of concerns that we would like entered into the record regarding the impact of the WGFP: • First and foremost, we would request that an extension for the public comment period be granted to allow for citizens to absorb the significant amount of information regarding the WGFP EIS and provide comments to the Bureau. While the Town of Winter Park is not a municipal water provider, we are affected economically and ecologically by diversions on the Fraser and Upper Colorado Rivers. • We firmly believe that the projected impacts of the WGFP and the forthcoming Moffat Expansion Project should be reviewed cumulatively. These two projects will create significant impacts to the Fraser and Upper Colorado Rivers in Grand County, and their total effect should be calculated in sum.	1. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
2	• Existing conditions in Grand County's creeks and rivers need to be evaluated and resolved prior to new diversions of water to the Front Range. A variety of users are already impacted, including agricultural irrigators not being able to divert water in late summer, municipalities having to pump water to meet surface diversion needs, and warmer water temperatures that endanger fish populations and affect the local recreation-based economy. It is our belief that the Draft EIS does not adequately explain the current impacts that diversions create on our creeks and rivers. Additional diversions will only exacerbate problems created by reduced flows, and the Draft EIS does not accurately combine all conditions. **Town of Winter Park** p.o. box 3327 winter park, colorado 80482 phone (970) 726-8081 fax (970) 726-8084 www.winterparkgov.com	2. The FEIS includes an assessment of the potential effects to a wide range of environmental and socioeconomic resources using the best information available. Where substantial adverse effects were identified, mitigation measures have been identified that will avoid and/or minimize adverse impacts. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS. Mitigation measures include the Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011.

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3	• The federal legislation creating the Colorado-Big Thompson Project – Senate Document 80 – identified the need to preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and Rocky Mountain National Park. It is our belief that additional diversions will be in direct conflict with the provisions of Senate Document 80 by removing flows from the Colorado River as well as additional water quality degradation to Grand Lake (as has been seen with the current operations of the C-BT).	3. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
4	• A key point in the WGFP EIS is the notion of prepositioning, which does not take into account the actual conditions of the snowpack, anticipated spring run-off quality, evaporation, or a host of other issues that affect the availability of water. Prepositioning assumes that supply is constantly available, and does not apply real-world reasoning to the amount of water available.	4. As currently configured in the Proposed Action, C-BT water is typically delivered to Chimney Hollow Reservoir during the fall and winter months when space is available in the Adams Tunnel. Chimney Hollow Reservoir is maintained full with C-BT and Windy Gap water so that when Windy Gap water is pumped, there is sufficient C-BT water in Chimney Hollow Reservoir to exchange. Operating in this manner maximizes the firm yield of Windy Gap water. Prepositioning does not assume that Windy Gap supplies are constantly available; if Windy Gap water is not available to pump in a dry year, C-BT water would build up in Chimney Hollow Reservoir.
5	• Many of the residents of Grand County and the Western Slope have learned to deal with cyclical increases and decreases in the amount of water available in the Colorado River basin, which demands conservation on our part in years where water resources are lean. Unfortunately, the ethos of conservation has not been requested of the municipal water providers along the northern Front Range. The WGFP perpetuates poor water usage habits on the part of many residents who do not know what the impact of their water usage does to our local communities. The northern Front Range has not been asked to conserve water in the same way that Grand County and Western Slope communities have. Conservation should be an integral priority for any water provider in Colorado due to the finite nature of water resources; unfortunately, this is not a component of the WGFP EIS.	The Subdistrict has proposed a modified version of prepositioning be included in the Proposed Action as mitigation for potentially lower water levels in Granby Reservoir as a result of the WGFP. This would reduce water level fluctuations in Granby Reservoir, particularly in dry years. Granby Reservoir would remain higher in dry years and Chimney Hollow Reservoir would remain lower. See Section 3.5.4 in the FEIS for a discussion of this mitigation measure.
6	• As our local communities transition from resource-extraction economies to recreation-based economies, water becomes more integral to our local businesses. Local economies in fishing, rafting, kayaking, and alpine skiing (snow-making) will all be significantly impacted by reductions in flows in the Colorado River. For industries that are as low-impact as these, every drop of water in the river is a significant financial benefit.	
7	• Coloradoans living on the Western Slope choose to live here for the enhanced quality of life that the Rocky Mountains provide. Water is a common thread between all of us who choose to live, work, and play here. Reductions in water mean a direct reduction in quality of life.	
8	• For municipal water providers on the Western Slope, the impacts of increased diversions is two-fold: less water for municipal purposes and less water for treatment of wastewater. Ongoing changes to state and federal requirements for treatment of water have been exclusively borne by local communities in the form of enhanced treatment facilities, and reduced flows will surely mean additional treatment requirements in the future. At this time, the WGFP EIS does not contemplate any compensation to local communities that are forced to upgrade wastewater treatment facilities, which significantly increases the burdens to communities affected the most.	5. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.
9	• The WGFP EIS does not contemplate any mitigation for additional diversions in the Colorado River. The lack of mitigation proves further that municipal providers of water on the northern Front Range have little regard for all of the above-mentioned issues. As communities that rely on strong, healthy streams for many of the aspects that keep us here, mitigation to improve our rivers and streams is critical. Any diversion should be offset by fair mitigation provided by those performing the impact.	6. The recreation analysis focuses on boating opportunities on the Colorado River and at existing reservoirs. Those uses were identified as issues during the scoping process and are the most likely to be affected by hydrological changes resulting from the alternatives. Potential impacts to land-based recreational activities, including camping, hiking, scenic driving, and sightseeing, are described in the Recreation Resources Technical Report and in the Effects Common to All Alternatives section.

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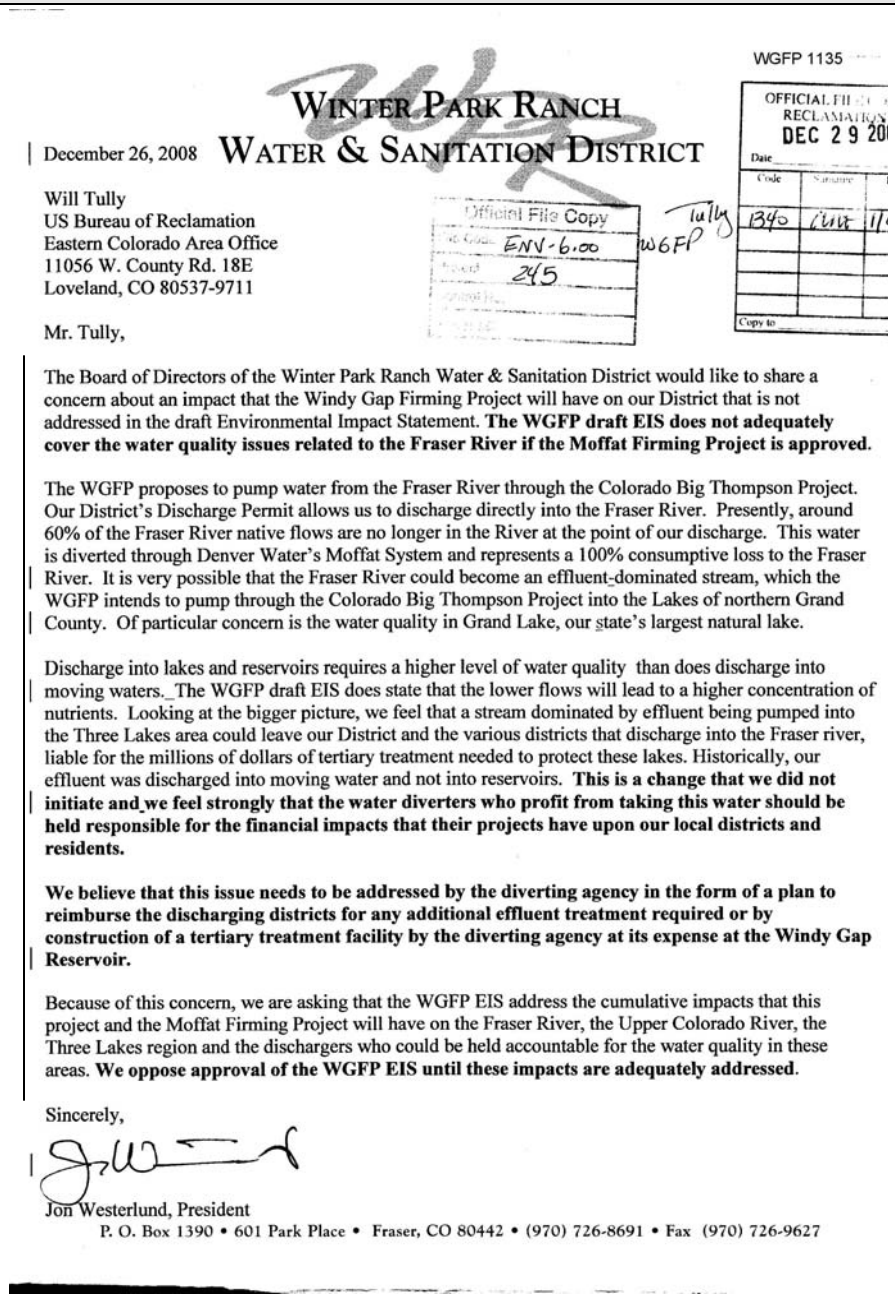
	Thank you for this opportunity to comment on the Windy Gap Firming Project Environmental Impact Statement. Our community is concerned about the significant potential impacts of this project, and would appreciate your consideration of this letter. Thank you for your time in this matter. Sincerely, James F. Myers Mayor CC: Grand County Board of County Commissioners Town of Fraser Board of Trustees Town of Grand Lake Board of Trustees Town of Granby Board of Trustees Town of Kremmling Town Council Town of Hot Sulphur Springs Board of Trustees Grand County Water and Sanitation District No. 1 Winter Park Water and Sanitation District Winter Park Ranch Water and Sanitation District Fraser Sanitation District Mr. Chandler Peter, United States Army Corps of Engineers	Potential effects of hydrological changes on commercial and private fishing opportunities are further described in the FEIS. However, the aquatic resources analysis determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. The direct and secondary economic impacts of boating and camping activities are described in detail in the Socioeconomics section. Property values are not expected to be affected. Impacts on property tax revenues from land acquisitions for reservoirs have been added to the FEIS. 7. See response to Comment No. 6. 8. WGFP water rights are relatively junior to other senior water rights in the upper Colorado River basin. Additionally, in 1980, as part of the original Windy Gap project, the Subdistrict agreed to subordinate its Windy Gap decrees to all present and future in-basin irrigation, and domestic and municipal uses (excluding industrial uses) on the Colorado and Fraser rivers and their tributaries above Windy Gap Reservoir as part of the original Windy Gap Project. Proposed mitigation to avoid increased nutrients in the Three lakes system as a result of the WGFP are discussed in Section 3.8.4 of the FEIS. These mitigation measures would improve the quality of the Fraser River, Willow Creek, and Colorado River regardless of WGFP diversions. 9. Additional mitigation measures were defined and developed to avoid or minimize the potential adverse impacts of implementing the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS.

Com-ment	Letter #1135	Response
1		1. The proposed WGFP would not impact flows in the Fraser River basin. The WGFP will not affect flows at the wastewater treatment plant's (WWTP) discharge point. The cumulative effects of the Moffat Project were evaluated as part of the WGFP, but these cumulative effects occur downstream of the confluence of the Fraser and Colorado rivers. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.

Comment	Letter #1151	Response

WGFP 1151

Winter Park Water & Sanitation District
P.O. Box 7, Winter Park, CO 80482

Administration 970.887.2970
Water Plant 970.726.9221
Wastewater Plant 970.726.5041

November 21, 2008

12-12-08

Mr. Will Tully
Bureau of Reclamation
Eastern Colorado Area Office
11056 W. County Road 18E
Loveland, CO 80537

Mr. Chandler J. Peter
U. S. Army Corps of Engineers
Denver Regulatory Office
9307 South Wadsworth Blvd.
Littleton, CO 80128-6901

ENV 600
CT

Re: Windy Gap Firming Project

Dear Mr. Tully and Mr. Peter:

Winter Park Water and Sanitation District (District) is located high up in the Fraser River Valley at the Winter Park Ski Area. The District serves the ski area and the Town of Winter Park. The District takes its water directly from the Fraser River not far below the Denver Water Department's Fraser River diversion. Trans-basin diversions have had a tremendous impact on the District. Accordingly, the District is qualified to comment on this project.

The District would like to acknowledge that the Municipal Subdistrict of the Northern Colorado Water Conservancy District, together with the Denver Water Department, Colorado River Water Conservation District, Middle Park Water Conservancy District, and Grand County, sponsored the Upper Colorado River Basin Study (UPCO) to define the issues regarding water availability in the basin. The Fraser River Basin was identified as being critically impacted by trans-basin diversions. The District is a contractee of the Middle Park Water Conservancy District and as such is an owner of a portion of the approximately 3,000 acre-feet provided to Middle Park by the Windy Gap Agreement. The UPCO Study indicates that shortages of water at the Winter Park Water and Sanitation District would be greatly reduced by the firming-up of Middle Park water. The District's interests are vitally affected by this project and we hope that the end result would be the firming-up of its Windy Gap water.

1 The District has been notified by the Army Corp of Engineers that it is preparing an Environmental Impact Statement for a project by the Denver Water Department which would increase its diversions through its Moffat Collection System and add new east slope storage. This new project by Denver Water will have a direct impact on flows in the Fraser River. Since the Windy Gap Project operations pump both Fraser River water and Colorado River water, the Bureau should consider the cumulative impacts of both projects on the Fraser River.

2 The UPCO Study management committee entered into a contract with an engineering firm, GEI, to study the possible ways of mitigating adverse impacts of Denver's and Northern's projects in Grand County, Colorado. One of the alternatives is to provide additional water to the Fraser Valley

1. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

2. We believe this alternative included bypassing the City of Broomfield's Windy Gap water for delivery via the C-BT Project. Broomfield currently receives treated water from Denver Water. However, there is no delivery mechanism for Broomfield to receive deliveries of water from Denver Water if it is transported through C-BT facilities. The entire capacity of the Southern Water Supply Pipeline is committed and there is no additional capacity to deliver more water from Carter Lake to Broomfield.

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	Mr. Will Tully Mr. Chandler J. Peter December 4, 2008 Page Two	
2	by utilizing both Denver's and Northern's systems in such a fashion that water could be bypassed by Denver, pumped by Northern and traded or exchanged back to Denver such that there is minimal loss by either Denver or Northern. This proposed alternative would seek to utilize the Colorado Big Thompson Project to convey water from the West Slope to the East Slope, provided there is carrying capacity remaining in the C-BT system.	
3	There are numerous documents that need to be reviewed to insure that the new project is in compliance with those original agreements. Those agreements provided for numerous mitigation measures and it is necessary to insure that those measures adequately address mitigation that is necessary for the Windy Gap Firming Project.	3. Reclamation's decision on the WGFP would require compliance with all applicable regulatory requirements, agreements, and mitigation measures.
	The Winter Park Water and Sanitation District, as an owner of Windy Gap water, is in vital need of this water for future development and without this water being available in a permanent fashion, our District will be adversely affected.	
4	Other issues that need to be addressed in this process include: 1. Overall impact on the endangered species in the Colorado River Basin. The Colorado River Basin Biological Opinion requires additional storage for East Slope Diverters. A reservoir in the headwaters would be most beneficial because it would serve many purposes in Grand County and provide the quantity of water necessary for the endangered fish in the vicinity of Grand Junction, Colorado.	4. The Subdistrict is a participant in the Recovery Program for Colorado River endangered fish species and signed a Recovery Agreement with the U.S. Fish and Wildlife Service (FWS) in March 2000. Section 7 consultation with the FWS on the WGFP was completed on February 12, 2010 when the FWS issued their biological opinion on the WGFP. A separate NEPA action is currently under consideration by Reclamation for providing 10,825 AF of water releases for endangered fish species. Current proposals include storage and release of half of the 10,825 AF of water from Granby Reservoir.
5	2. Additional exportation of water from the headwaters and its overall impact on water quality along the Fraser River Basin and the Colorado River Basin needs to be addressed by this process. Degradation of the water quality could affect municipal wastewater treatment plant discharge permits, requiring tremendously expensive up-grades to the treatment systems in these areas. Several of these systems are new or currently under construction, and additional expense at this point would be an undue hardship for these small municipalities.	5. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures include upgrades to the Fraser WWTP and implementation of best management practices and other erosion-control measures to reduce nonpoint agricultural sources of nutrient discharges in the Willow Creek drainage and elsewhere. These measures would offset nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and Colorado River.
	The Winter Park Water and Sanitation District appreciates the opportunity to submit these comments. Very truly ~~yours~~, Jack W. Buchheister President	

Com-ment	Letter #401	Response
	WGFP 401 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Mike Wageck MR. WAGECK: Good evening. My name is Mike Wageck. It's W-a-g-e-c-k, just like it sounds. I'm the district manager for Winter Park Water and Sanitation District, and we serve the Winter Park ski area. We serve the Winter Park ski area and residential community right near the base. It's a pretty small district. We divert water from Fraser River, and we operate a wastewater treatment plant that discharges the water back from the Fraser River. I've been hearing through the process, through the years when we have been coming to these meetings, that those discharges from the wastewater treatment plants on the Fraser River are part of the problem for the water quality up in the Three Lakes area. My friend's, Bruce's, reaction to that is: If you don't like the water, don't pump it. Don't take it. Leave it in the river. It's not a problem for the river. My reaction to that is: If they don't like the water, maybe they should fix the problem. You know,	
1	if there is an issue over there with the wastewater treatment plants, they should pay to improve the treatment to whatever quality of water they feel comfortable with leaving the river. Now, we have spent enough money up there lately. The last eight years, we spent like $15 million in the community improving the wastewater treatment plant. If you include Granby's latest expansion, we're over $20 million that we have spent in the last eight to ten years to improve the wastewater treatment plants in the Fraser River. So we have spent enough.	1. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes anticipated from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.
2	Now, looking at this draft EIS, I see there is a lot of impacts across the board, but not very much in the way of mitigation. There is no mitigation -- very little mitigation measures in place. Now, I understand that the mitigation measures for the Windy Gap project were put in place with the original project. I think we have a unique opportunity right now to look back at those mitigation measures and see if they are working; you know, see if we have missed anything. Based on the comments I am hearing tonight, we have missed water quality. You know, maybe back when	2. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS. In addition to the mitigation measures used to reduce nutrient loading into the Colorado River and Three Lakes as described in response to Comment No. 1, additional mitigation measures will be implemented to avoid or minimize other adverse water quality effects of the WGFP. These are described in Section 3.8.4 of the FEIS.

Com-ment	Letter #401	Response
2	the original permit was put in place, water quality wasn't an issue, but it certainly is an issue now. And I think that we need to put some real strong measures in place to protect the water quality, improve the water quality, and protect the water quality in the Three Lakes area, before any more additional water is pumped from the Windy Gap project. And that's all I have, thanks.	

Response to Comments by Organizations, Environmental Groups, and Local Businesses

Comments by organizations, environmental groups, and local businesses are listed alphabetically in Table 2. Responses to these comments follow the table.

Table 2. Comments by organizations, environmental groups, and local businesses.

Organization	Commenter	Letter Number
Adventures in White Water Rafting	Helena Powell	390
Adventures in Whitewater	Paul Renfro	125
Bar Lazy J Guest Ranch	Jerry Helmicki	1052
Bein Mountain Ranch LLC	Laura Emerson	51
Chimney Rock Ranch	Fritz Holleman	1059
Clinton Ditch and Reservoir Company	Glenn Porzak	1060
Colorado Environmental Coalition	Becky Long	381
Colorado Environmental Coalition	Becky Long	883
Colorado River Outfitter Association	Helena Powell	121
Colorado River Ranch	Pete and Carol Petersen	118
Colorado Wildlife Federation	Suzanne O'Neill	1063
Fly Fishing Outfitters, Confluence Kayaks, Cutthroat Anglers, Winter Park Optical, Devil's Thumb Ranch	Bob Streb, Jonathan Kahn, Chris Hall, Scott Linn, Seth Martin	1110
Front Range Anglers	Paul Prentiss	240
GeoTours Whitewater Raft Trips	Bruce Becker	256
Gold Medal Ranch LLC	Norman Carpenter	24
Granby Chamber of Commerce	Sharon Brenner	359
Greater Grand Lake Shoreline Association	John Brooks	408
Greater Grand Lake Shoreline Association	Steve Paul	58
Greater Grand Lake Shoreline Association	Steve Paul	388
McElroy Ranch	John, Mary, McElroy	1094
Middle Park Stockgrowers	Bill Thompson	1124
Mo Henry's Trout Shop	Henry Kirwan	237
Mo Henry's Trout Shop	Henry Kirwan	375
Mountain Lakes Lodge	Richard Naha	1103
North Shore Resort	Richard Naha	1106
Platte River Power	Bill Emslie	367
R.W. Thorpe & Associates, Inc.	Robert Thorpe	148
Shoreline Landing Homeowners Association	Canton O'Donnell	386
Sierra Club - Rocky Mountain Chapter	Mark Easter	1117
Tabernash Meadows Water and Sanitation	Lauralee Kourse	204
Three Lakes Watershed Association	Elwin Crabtree	363
Three Lakes Watershed Association	Elwin Crabtree	33
Trout Unlimited	David McComb	417

Organization	Commenter	Letter Number
Trout Unlimited	Amelia Whiting	1126
Western Resource Advocates	Bart Miller	1138
Wiegers & Co.	George A. Wiegers	252
Winter Park Optical	Scott Linn	380
Winter Park Resort	Gary DeFrange	1136
Yust Ranch	Jim Yust	168

Business and Organization Letters and Responses

Com-ment	Letter #390	Response
1	WGFP 390 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Helena Powell MS. POWELL: Hi, my name is Helena Powell, P-o-w-e-l-l. I'm representing my business, Adventures in White Water Rafting. I am also the director from the Headwaters Institute for the Colorado River headwaters. I would love to stand here this evening on my soap box and talk about the environment, but I think everybody has done that much more eloquently that I possibly could. Since the Front Range focuses on their dollars, and the dollar seems to drive our economy, let's talk about money this evening. In front of me from the Colorado River Rafting Association, I have statistics on economic impacts of commercial river rafting in Colorado. Our statistics actually go up to the year 2007. I would like to make a proposal that you all well should deal with your hydrological data and your sociological economic impacts up to this current year, if at all possible. I do not believe that, in only addressing the time period up to 1996, that you can adequately deal with what we're dealing with. Especially because those of us around here know in 2002 was the worst drought year that we have probably ever seen in many decades up here. So as far as our economic impact, right now in the year 2007, direct expenditures for river rafting in the entire state of Colorado was almost $60 million. I know we have talked a lot about economic impact and the multiplier factor, but nobody has had any statistics. To give you an idea, on $60 million, our economic impact for last year was $153 million-plus dollars. Basically, that's all sorts of tourism dollars coming in, and we don't even have any kind of say in this EIS statement. So I would like you to take into consideration that, as well. For the section of water that we are dealing with right here, the Upper Colorado River, last year we had 32,000 river users days for commercial use only. That was direct expenditures of $3.4 million on our little section of river alone, which led to an economic impact multiplier of $8,725,000. You know, that's a huge, huge standing. I mean, there are 52 river outfitters, including myself,	1. The 47-year hydrologic study period provides a reasonable estimate of the range of likely future hydrologic conditions from which to evaluate the potential effects of the WGFP alternatives. Expanding the hydrologic period to 2002 was considered, but data were not available at the time the modeling was conducted. Regardless, the WGFP would have no impact in drought years like 2002 because Windy Gap water rights did not come into priority in 2002 and there were no Windy Gap diversions in 2002. The Socioeconomics section of the FEIS quantifies impacts on commercial boating from the alternatives using the best available data.

Com-ment	Letter #390	Response
	that are permanent through the Bureau of Land Management on the Upper Colorado headwaters. That's a lot of businesses. We're looking at -- you know, in 2002, when we had a drought -- which was basically we're looking at just below minimum flows of what you guys are looking at -- in 2002, the river rafting industry, which is the number one tourism industry in the summertime in the state of Colorado, we dropped 40 percent in total user days. That's 206,000 people that didn't come down the river with us that year. Why? Because there is no water. Who wants to take their family out into the wilderness when there is no water? So, basically, I'm saying, you know, if this firming project goes through and we wind up without water here, there is half my industry. Not just me, not just the 52 up here on the Colorado, but it has a massive impact on our state and our industry as a whole. So I would ask that you take that into your consideration.	
2	I also see some additional flaws in there, as far as socioeconomic study. You know, the rafting prices per day that you guys are looking at through commercial outfitters are completely outdated. You know , looking at the $72 average trip through Gore Canyon, if you go ahead and look at river outfitters throughout the state, it's two to three times more than that for present-day dollar.	2. The economic value of boating differs from the prices rafting companies charge their customers because some of the costs incurred by the rafting company are not captured in the local economy. A recent study was used to estimate the economic value of boating (Loomis 2005), which was indexed to 2007 levels.
3	Another thing that I had an issue with was minimum flows on the Colorado for a sustainable business. 400 CFS is not a river to float on, I'm sorry. 800 was the next level. That's barely skimming the bottom.	3. The development of "preferred flow" and "minimum preferred flow" standards for boating on the Colorado River was based on previous studies, published guidebooks, and personal communications with raft guides and BLM staff. The 400 cfs minimum flow reported in the DEIS was not used in calculation of impacts. After review of the Grand County Stream Management Plan and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs for Pumphouse. The Recreation section of the FEIS includes these changes.
	I appreciate the time, and I especially appreciate everybody who stayed for the entire meeting. I would recommend a 60-day extension as well. Thank you.	

Comment	Letter #125	Response
1	RECLAMATION *Managing Water in the West* — Granby **We Invite Your Comments!** Granby **Windy Gap Firming Project** **Draft Environmental Impact Statement** Name* Paul Renfro — Date Company /Organization Adventures In Whitewater Street Address Po Box 3708 Winter Park, CO City, State, Zip E-mail paul@adventuresinwhitewater.com Our practice is to make comments, including names and home addresses of respondents, available for public review. Individual respondents may request that we withhold their home address from public disclosure, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity from public disclosure, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public disclosure in their entirety. *Would like your name and address withheld from public disclosure*? YES X NO* **Please check (√) below if you would like to be *added* to the project's mailing list:** X **Yes, add my name to the mailing list** ☐ **No, I do not want to be on the mailing list** Comments are considered substantive if they: • Question, with reasonable basis, the accuracy of the information in the document • Question, with reasonable basis, the adequacy of the environmental analysis • Present reasonable alternatives other than those presented in the Environmental Impact Statement • Cause changes or revisions in the alternatives • Provide new or additional information relevant to the analysis **Comments:** I feel that the minimum flow for Rafting + KayaKing are to low for a longterm sustainable buisness. 400 cfs is [redacted] way to low + even 800 cfs is fairly low estimate for longterm effects to a buisness. If Flows are below the fun factor I will not have return customers *Please continue on reverse side* U.S. Department of the Interior Bureau of Reclamation	1. The development of "preferred flow" and "minimum preferred flow" standards for boating on the Colorado River was based on previous studies, published guidebooks, and personal communications with raft guides and BLM staff. After review of the Grand County Stream Management Plan and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 for Pumphouse. The Recreation Section in Chapter 3 of the FEIS includes these changes.

Com-ment	Letter #1052	Response
1	WGFP 1052 BAR LAZY J GUEST RANCH Mr. Will Tully Bureau of Reclamation 11056 W CR 18E Loveland, CO 80537 Mr. Chandler J. Peter U.S. Army Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128-6901 Re: Windy Gap Firming Project Draft EIS Mr. Tully & Mr. Peter: As business owners and managers, we write to share our serious concerns with the proposed Windy Gap Firming Project (WGFP) and its potential impacts on the Colorado River and, by extension, on the regional economy. The Colorado River and its tributaries are the lifeblood of western slope communities, supporting economic drivers from recreation and tourism to agriculture. For example, in Grand County, every tourist activity relies directly on the natural flow of water – and visitor expenditures account for a majority of retail sales countywide. Maintaining a healthy Colorado River is not only essential to local ecosystems, but to the economic future of our region. Protection of the Colorado River should be a basic expectation for WGFP before any federal approvals are granted. Indeed, the Bureau of Reclamation has a legal responsibility to operate the Colorado-Big Thompson Project in a manner that furthers the primary purposes of the project. Those primary purposes include preservation of the Colorado River's fisheries and recreation opportunities. Accordingly, unless strict conditions are imposed on WGFP that will ensure that no harm will result, Reclamation must not approve the project.	1. Reclamation will continue to operate the C-BT Project in accordance with the requirements of Senate document 80. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
2	Unfortunately, the Draft Environmental Impact Statement fails to reasonably assess the impacts of the WGFP on the Colorado River's natural resources and the local economies that rely on them. In many places, the DEIS makes leaps that strain believability. For example, the DEIS anticipates that WGFP is "unlikely to noticeably affect recreation use" at Granby – despite information showing that the project would result in additional periods when boat ramps at Granby Reservoir would be inaccessible due to lower reservoir levels. The DEIS downplays consideration of cumulative effects of WGFP alongside historic operations so as to suggest that there will be little effect on fisheries or fishing – despite information showing that periods of lower flow will become more common and that state water quality standards for temperature will be violated. As local businesses, it seems to us that the DEIS is asking our communities to take a leap of faith that WGFP is benign despite – not because of – the evidence.	2. As a result of operation of the C-BT Project, Granby Reservoir water levels have fluctuated widely in the past and would continue to do so in the future. To minimize adverse effects of the WGFP on Granby Reservoir water levels, mitigation has been proposed that modifies the way prepositioning is implemented as discussed in Section 3.5.4 of the FEIS. Hydrologic modeling indicates that prepositioning of C-BT water in Chimney Hollow would likely be curtailed when Granby Reservoir storage reaches about 340,000 AF (8,250 feet in elevation). Additional information has been added to the FEIS to better correlate drawdowns during consecutive dry years with reservoir surface area in Section 3.19.2—Recreation. See Section 3.8.4 for a description of temperature mitigation measures associated with the WGFP that would reduce the potential for impacts to fish.
3	Perhaps the most serious flaw is the DEIS' failure to consider the broad-based economic effects of reduced recreation and the ripple effects through the regional economy. The DEIS excludes from consideration many key aspects of the recreation economy by limiting IE DUDE RANCHERS' ASSOCIATION Established 1926 P.O. Box N • 447 County Road 3 • Parshall, CO 80468 • www.barlazyj.com toll free: 800.396.6279 • phone: 970.725.3437 • fax: 970.725.0121 • info@barlazyj.com COLORADO DUDE & GUES RANCH ASSOCIATIO	

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consideration to active recreation where there is public access. This narrow analysis fails to include many key economic factors for the west slope:

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- potential failure of irrigation systems due to reduced streamflow;
- ranchers who rely on fishing leases along the Colorado River;
- real estate and resort developments where a healthy Colorado River is a primary or sole asset;
- lakefront and riverfront properties whose value is directly related to reservoir water clarity and water quality; and
- numerous summer recreation-oriented and visitor-oriented businesses including private marinas, local motels, restaurants, recreation-oriented retailers, et cetera.

4 In light of these major deficiencies, we ask that Reclamation and the Corps develop a Supplemental Environmental Impact Statement that offers a more thorough and accurate consideration of the environmental and economic effects of WGFP – to inform your decision-making and to allow the public the opportunity to review and comment on the analyses that were inadequate in the current DEIS. In this Supplemental EIS, we request that you:

- 5 Analyze the cumulative impacts of all trans-basin diversion from the Colorado River, including existing impacts from the Colorado-Big Thompson Project and Moffat Collection System.
- 6 More rigorously assess fishery flow needs so that a determination can be made of whether WGFP is consistent with the Colorado-Big Thompson Project primary purpose of preserving the Colorado River's fisheries.
- 7 Conduct a more complete assessment of the socioeconomic impacts of the WGFP, including the impacts described above that were omitted from consideration in the DEIS.
- 8 Consider alternatives for water supply to the WGFP participants that would not require further significant depletions of the Colorado River.

As businesspeople, our livelihoods depend on preservation of a viable Colorado River. We urge you to take the steps necessary to protect this vital resource for our environment, communities, and economy. Thank you for the opportunity to comment.

Sincerely,

Jerry Helmicki
President
Bar Lazy J Guest Ranch

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3. The Subdistrict would comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In addition, the WGFP would comply with Colorado River bypass flow requirements established by the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir, 135 cfs below the Williams Fork, or 150 cfs below Troublesome Creek. The Windy Gap Project cannot divert if the agreed minimum flows are not met, even if Windy Gap water rights are in priority. Colorado River flows may fall below the minimum streamflow volumes when the WGFP is not pumping, particularly in the late summer. The Subdistrict has no control over Colorado River flow when the Windy Gap Project is not pumping.

The EIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of diversion for their water. Per the Azure Agreement, the Subdistrict funded $500,000 in improvements for ranches downstream from Windy Gap Reservoir to maintain their diversion structures on the Colorado River. Anticipated diversions of the original Windy Gap Project were greater than those in the WGFP.

Effects were quantified where data on use and impacts are available. Effects of the proposed alternatives on recreation experiences and aesthetics is qualitatively described wherever possible, recognizing that these effects vary widely by individual user.

Reductions in preferred boating flows and boating days are described in the Recreation and Socioeconomics sections. This analysis focuses primarily on commercial boating, for which baseline use data exists.

As described in the Aquatic Resources section of the FEIS, projected effects to fish habitat are not anticipated to translate to a loss in fishing opportunities or fishing success. Based on the hydrologic analysis and anticipated changes, the DEIS correctly states that hydrological changes are unlikely to adversely impact sport fishing under any of the alternatives, and that changes to the visual quality of the Colorado River would not be discernable to most viewers, and would remain similar to existing conditions. It is therefore reasonable to assume that the proposed hydrological changes would not impact private development along the Colorado River.

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		We were unable to find any information to quantify the incremental impacts on property value for changes in lake levels in a high elevation western water storage reservoir where water levels fluctuate widely like Granby Reservoir. As described in response to Comment No. 1, modified prepositioning for the Preferred Alternative would reduce Granby Reservoir water level drawdowns in average and dry years. 4. No supplemental EIS is required to address the comments received on the DEIS. The FEIS includes additional information and clarifications on project impacts, as well as more specific mitigation measures. 5. The WGFP FEIS considered past, present, and reasonably foreseeable future actions in the cumulative effects assessment. The C-BT Project is a past action that was included in the baseline hydrology and also was used in the evaluation of cumulative hydrologic impacts and cumulative impacts to other resources. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. 6. Additional discussion, figures, and tables to illustrate potential effects to fisheries were added in Section 3.9.2 of the FEIS. The FEIS also includes additional mitigation measures for aquatic resources in Sections 3.8.4 and 3.9.4 per the development of a Fish and Wildlife Mitigation Plan in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). These measures include nutrient reduction to improve water quality in the Fraser River, Willow Creek, and Colorado River. Please see additional text added at the beginning of the Responses to Comments Section of the FEIS Appendix F explaining legal issues related to the proposed WGFP and the C-BT Project. 7. The socioeconomic evaluation was conducted using the best information available. See response to Comment No. 3.

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		8. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yield from Participant water rights that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap water represented a source of existing water available to the Participants, but required additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP is to fix a broken project using existing water rights, not to search for new sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply and will be investigating other sources of water to meet those needs; the WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

Com-ment	Letter #51	Response
1	WGFP 51 **From:** LAURA EMERSON [lemerson@frii.com] **Sent:** Thursday, October 09, 2008 10:24 AM **To:** wtully@gp.usbr.gov **Subject:** Comment RE: Chimney Hollow Reservoir Project According to the October 8, 2008 the impact on fishing in the Colorado River was considered as part of the environmental impact of the Chimney Hollow Reservoir project, but no mention was made of the impact on fishing in the Big Thompson River. I live on the Big Thompson River and lease fishing rights, limiting the number of fishermen to two at a time to preserve the river and make for a better experience for them. An earlier Reporter Hearald article about the Chimney Hollow project mentioned that when the reservoir is completed, the water flow in the Big Thompson will increase by 5%. I don't know what has been going on this year with the water, but we have had an all-summer run-off season continuing into October, so my fishing income this year is a few hundred dollars instead of about $3600. I use that money to pay the property taxes and maintain the river banks on our land.	1. As indicated in Section 3.9.2.4 of the FEIS, the small increases in flow projected for the Big Thompson River below Lake Estes could increase fish habitat slightly, but is unlikely to measurably affect fish populations or fishing.
2	My official comment is that raised water levels in the Big Thompson River are going to adversely affect the trout fishing in the river. This affects all of the people who rent vacation cabins along the river, fishing guides, fishing shops, and landowners who lease fishing rights. Thank you, Laura Emerson Bein Mountain Ranch LLC 173 Brown Trout Lane Drake, CO 80515 970-586-3267	2. See response to Comment No. 1 above. The modest flow increases in the Big Thompson River are anticipated to have a negligible effect on an angler's ability to wade in the stream. Flow increases are small (generally less than 10 cfs) when flows are usually in the range of 35 cfs to 40 cfs. The increases occur in summer. Flow increases of this type should benefit both the invertebrates and fish without impacting the ability to fish the river.

Com-ment	Letter #1059	Response

WGFP 1059

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Project 245
Comment No.

December 29, 2008

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Tully

VIA EMAIL WTULLY@gp.usbr.gov and U.S. MAIL
Mr. Will Tully
Bureau of Reclamation
11056 West County Road 18E
Loveland, CO 80537-9711

Re: Windy Gap Firming Project Draft Environmental Impact Statement

Dear Mr. Tully,

We are writing on behalf of Chimney Rock Ranch to express our serious concerns with the sufficiency of the Windy Gap Firming Project Draft Environmental Impact Statement.

Ranch Description.

Chimney Rock Ranch ("CRR") begins about one mile downstream of the existing Windy Gap Reservoir on the Colorado River. The ranch owns land on both sides of the river for about 5 miles. As currently configured, the ranch is a combination of other historic ranches. The priority dates for the earliest irrigation water rights for the ranch are more than 100 years old. The historic irrigation and cattle ranching operations continue at CRR.

The Colorado River is the heart of the ranch. It is the source of the irrigation water, an extraordinary aesthetic asset, and, importantly, is designated a "Gold Medal" trout stream by the Colorado Division of Wildlife ("CDOW") in the vicinity of the ranch. The "Gold Medal" designation is reserved for "the highest quality cold water habitats that have the capability to produce many quality size (14 inches or longer) trout."[1]

There is no question that the proposed Windy Gap Firming Project ("WGFP") will adversely effect the Colorado River, the trout fishery and the environment in the vicinity of CRR. Some of that impact is acknowledged in the DEIS. For example, even using the suspect assumptions and analysis in the DEIS, the preferred alternative will result in a 21,283 AF decrease in average annual flows below Windy Gap (DEIS Table 3-2). The preferred alternative will cause flow levels in the river below Windy Gap to be at

[1] COLORADO WILDLIFE COMMISSION POLICY: "Wild and Gold Medal Trout Management," September 18, 1992, rev'd June 12, 2008.

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or below 100 CFS more often (DEIS Table 3-7), and will raise the water temperature at those critical low flow levels by up to 4.0° C. (DEIS 3-96, 97, Fig. 3-38). The WGFP will decrease the amount of dissolved oxygen in the water at the ranch (DEIS Fig. 3-42), and increase both ammonia and inorganic phosphorous. (DEIS Fig. 3-44, 45, 46). It will cause a 24% loss of habitat for adult rainbow trout in 4 out of 10 years. (DEIS 3-137).

In short, CRR is at ground zero for the impacts of the WGFP. As the DEIS explains, the "greatest effect to fish habitat [from the WGFP] would occur in the reach between Windy Gap Reservoir and the Williams Fork River." (DEIS 3-145). Even with the foregoing admissions, however, as we demonstrate below, the DEIS grossly underestimates the full range and magnitude of the environmental and economic damage that the WGFP will cause.

CRR is particularly concerned with the WGFP because it has already suffered the devastating impact of the whirling disease ("WD") epidemic and the associated complete loss of the Colorado River rainbow trout fishery in the vicinity of the ranch. The existing Windy Gap Reservoir was a primary cause of that epidemic. In response to the WD crisis, CRR has worked extensively with CDOW and Colorado State University on numerous studies and programs to address WD and habitat issues in the Colorado River in the vicinity of the ranch. Most recently, CRR is working with CDOW on the introduction of a new strain of rainbow trout with greater resistance to the disease. CDOW hopes to use this new strain as brood stock in the rest of the State to replace the rainbow trout lost to WD.

CRR Comments on DEIS

The purpose of an EIS prepared under NEPA is to accurately inform both the public and federal decision makers concerning the environmental impacts of any proposed federal action. *See Baltimore Gas & Elec. Co. v. Natural Resources Defense Council,* 462 U.S. 87, 97 (1983); *Sierra Club v. United States Dep't of Energy,* 287 F.3d 1256, 1262 (10th Cir. 2002). CRR is concerned that the WGFP DEIS serves neither of these purposes.

Our comments below are organized around the issues that cause the greatest concern for CRR, as follows:

1. Failure of the DEIS to discuss a real "no-action" alternative that characterizes the status quo and can serve as an accurate baseline against which the impacts of the WGFP can be measured.

2. Failure of the DEIS to address Senate Document 80 and the protections for the West Slope in that document.

3. Failure of the DEIS to sufficiently address proposals to mitigate the impact of the WGFP, in particular the lack of any discussion of the benefits that would result from making Windy Gap an off-channel reservoir.

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1	4. Failure of the DEIS to sufficiently address the serious cumulative environmental impacts that the Colorado Big-Thompson Project, Windy Gap, and other transmountain diversion projects have or will cause. 5. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the most recent period of record. 6. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the science on climate change. 7. Failure of the DEIS to address the negative impact of the preferred alternative on private fishing, and private property values in the most impacted reach below Windy Gap. **DISCUSSION** **1. Failure of the DEIS to discuss an actual "no-action" alternative.** The consideration of alternatives to the preferred action is the "heart" of every NEPA analysis. 40 C.F.R. § 1502.14. As part of the "reasonable range of alternatives" that must be discussed, an EIS must "include the alternative of no-action." 40 C.F.R. § 1502.14(d). The consideration of a "no-action" alternative is intended to require that "agencies compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo." *Custer County Action Assoc. v. Garvey,* 256 F.3d 1024, 1040 (10th Cir. 2001). For the "no-action" alternative, "the current level of activity is used as a benchmark." *Id.* In contrast to the clear direction from the Tenth Circuit, and the NEPA regulations cited above, Reclamation's DEIS contains no genuine "no action" alternative. Rather, where an explanation of the status quo is required, the DEIS offers the increased depletions that would result from the possible construction of Ralph Price Reservoir by the City of Longmont. Whether or not this reservoir will be built is purely speculative, particularly in the current economic climate. It is wrong for the DEIS to use this artificial baseline as the starting point to analyze the impacts of the WGFP. The effect of including the increased diversions that would result from the construction of Ralph Price within the "no action" alternative in the DEIS is that the real incremental impacts of the WGFP as measured against the status quo are not documented. We are similarly concerned that the DEIS misrepresents the current level of Windy Gap diversions. In its comment letter, Grand County explains that the annual average diversions by Windy Gap have been closer to the 11,080 AF reported in the Water Resources Technical Appendix to the DEIS (Table 3, at 22) than the over 36,000 AF that are used to describe the existing condition in the DEIS analysis. (See DEIS Table 3-2, at 3-19). Again, the effect of this inflated baseline is to diminish the impacts of the WGFP postulated in the DEIS. 27655 3	1. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connection to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For Windy Gap and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, No. 3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is reasonable action for the City of Longmont and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts, included under the No Action alternative entail increased Windy Gap diversions by participants which they can currently do without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative or that the No Action alternative should be no diversions.

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		Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions with a WGFP. Recent diversions represents the Participants' need for water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 since Granby Reservoir last filled averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action. In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources.

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1	The lack of an accurate baseline from which to measure the impacts of the WGFP is a deficiency that infects the entire document. Thus, even the very serious impacts that are explained in the DEIS to the average annual river flow, the water quality and temperature, and the fish habitat are all grossly underestimated. Until a new DEIS with an analysis of the impacts of the WGFP against an accurate baseline is presented, federal decision-makers and the interested public have no basis to understand the actual environmental impacts of the WGFP. *See Half Moon Bay Fishermans' Mktg Ass'n v.* Carlucci, 875 F.2d 505, 510 (9th Cir. 1988)("Without establishing the base line conditions which exist, there is simply no way to comply with NEPA."). Reclamation cannot fulfill its fundamental obligations under NEPA based on the information in the current DEIS. A new NEPA document is required.	
2	**2. Failure of the DEIS to address Senate Document 80 and the protections for the West Slope in that document.** Because the WGFP will rely on Colorado-Big Thompson ("CBT") facilities, Reclamation must determine whether the WGFP complies with Senate Document 80, the federal statute that authorized construction of the CBT project. Senate Document 80 contains requirements for use of CBT water on the East Slope, use of Green Mountain Reservoir for West Slope beneficiaries, and a number of provisions that specifically protect the headwaters of the Colorado River system in Grand County. Recognizing that CBT would "change the regimen of the Colorado River below Granby Reservoir[,]" Senate Document 80 sets out "primary purposes" for the operation and management of the CBT project, as follows (1) to preserve the vested and future rights in irrigation; (2) to preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and Rocky Mountain National Park; 3) to preserve the present surface elevations of the water in Grand Lake and to prevent a variation in these elevations greater than their normal fluctuations ….; 5) to maintain conditions of river flow for the benefit of domestic and sanitary uses of this water. The DEIS recognizes the obligation to consider Senate Document 80, but with respect to the ability of the WGFP to comply, states: "This determination will be made available at a later time and is not part of this EIS." (DEIS at 1-42). This is backwards. No aspect of the WGFP, including any further environmental review, should occur until there is a determination concerning whether WGFP can comply with Senate Document 80. *See* 40 CFR §§ 1508.27, 1502.16(c), 1506.2(d)(requiring an EIS to discuss any inconsistency between the proposed project and any federal, state or local plan or law). Moreover, compliance with Senate Doc. 80 may require mitigation for the West Slope. Those mitigation measures would be part of this project, and would need to be specified and studied in this EIS for Reclamation to satisfy NEPA. The Department of the Interior's recent NEPA regulations specify that the mitigation section of an EIS must 27655 4	2. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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2	address any mitigation measures "required to make [a] proposal conform to applicable legal requirements, as well as any voluntary ameliorative design elements(s)." 73 Fed. Reg. 61317 (to be codified 43 CFR § 46.130). With respect to this DEIS, Reclamation appears to be moving ahead in violation of its own regulations. As discussed in the next section below, the mitigation measures identified in the DEIS are insufficiently discussed. Worse, the mitigation that could be achieved by taking Windy Gap Reservoir off-channel - - the measure that would provide the best protection from the environmental problems created by that facility for CRR and everyone else downstream - - is not even discussed.	3. Additional mitigation measures were defined and developed to avoid or minimize adverse effects from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP includes measures to mitigate exceedance of the temperature standard. These measures are a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Relocating Windy Gap Reservoir to an off-channel location was not considered as a component of the project. Other mitigation measures to reduce nutrient loading in the Colorado River would reduce aquatic impacts. Because of the short residence time in Windy Gap Reservoir, substantial warming does not occur. The existing conditions include the past effects of streamflow temperature regimes and factors such as whirling disease. Whirling disease in particular is widespread across the State of Colorado and has resulted in the loss or reduction of rainbow trout populations in most of the State's rivers. The CDOW is actively researching ways to counteract whirling disease within the river systems, including stocking alternate species that are less susceptible to whirling disease. The statement attributing lower whirling disease pathogens comes from Mr. Barry Nehring of CDOW. The FEIS was edited to reference the source of that statement. The lower number of pathogens may be due in part to a shift in the species composition of tubifex worms in Windy Gap Reservoir. Additional discussion has been added to the FEIS to provide more recent information from the Division of Wildlife on the tubiflex worms. In a presentation made on the Colorado River fishery, Jon Ewert, CDOW biologist, stated that the nonhost tubifex species was becoming more prevalent in the reservoir and was part of the reason for the lower incidence of whirling disease pathogens (Jon Ewert, CDOW, July 14, 2009).
3	**3. Failure of the DEIS to sufficiently address proposals to mitigate the impact of the WGFP, in particular the lack of any discussion concerning the benefits of making Windy Gap an off-channel reservoir.** The DEIS effectively treats mitigation as a laundry list with minimally described possibilities, but no meaningful analysis. (DEIS 3-292-295). For many of the listed items, even the mitigation proposed is vague and speculative, including things that "might be" done if deemed appropriate by the proponent of the project. For example, on the critical question of low flows, the DEIS states that "the Subdistrict will work with Grand County, the Colorado Division of Wildlife, and others to determine if increasing bypass flows in the Colorado River from the existing minimum flow of 90 cfs to 135 cfs while Windy Gap is pumping during July and August would result in temperature reductions downstream of Windy Gap that would measurably benefit the trout fishery. If studies indicate that increased bypass flows would be effective, the Subdistrict would consider increasing required bypass flows under certain water supply conditions." (DEIS 3-292). The DEIS does not explain what studies are planned or underway to determine the effectiveness of increased bypass flows, nor what, if any, commitment the Subdistrict has made to actually increase bypass flows if the fishery experts find measurable benefits. This is not the meaningful or informative analysis of mitigation required in a NEPA document. *See, Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 353, (1989)). Without real mitigation proposals, and a discussion of the extent to which they actually would or would not effectively mitigate WGFP impacts, there is very little in this section that can be said to inform either federal decision-makers or the public. The primary mitigation proposal that should be considered in the supplemental EIS is the possibility of making Windy Gap an off-channel reservoir. This proposal was frequently discussed as a possible solution to WD and the many other negative environmental impacts already caused by Windy Gap. (See Meyers, "Creating a river bypass might be the solution", attached hereto as Exhibit A; see also Nehring and Thompson, North American Journal of Fisheries Management 23:376-384, 2003 ("This fishery might benefit greatly if a means could be devised to sequester actinospores produced in the Windy Gap Reservoir within the lake.")). Even if Reclamation is able to demonstrate the Windy Gap is not still exacerbating the WD problem, taking this 27655 5	

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3	reservoir off-channel by means of a bypass would mitigate the temperature increases, nutrient loading, and oxygen depletion that are caused by this facility. CRR believes that taking Windy Gap off-channel is the most certain mitigation to alleviate the problems from this facility, and it should be evaluated in the supplemental EIS. The DEIS should also address the Grand County Stream Management Plan in its mitigation section, and there is no discussion of the carefully crafted flow recommendations in that document. The new DOI NEPA regulations direct Reclamation to "consult, coordinate, and cooperate with relevant State, local and tribal governments . . . concerning the environmental effects of any Federal action within the jurisdictions or related to the interests of these entities." 73 Fed. Reg. 61317 (to be codified at 43 CFR § 46.155). In light of that direction, the County's Stream Management Plan should be the guiding document in evaluating proposed mitigation.	The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP is to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures have been identified or will be developed to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS might help meet some of the goals of the SMP.
4	**4. Failure of the DEIS to sufficiently address the cumulative environmental impacts that the CBT project, Windy Gap, and other transmountain diversion projects have or will cause.** The DEIS contains an insufficient discussion of the serious environmental impacts that CBT, Windy Gap, and other transmountain diversion projects have already had on the Colorado River and its environs. The direct cumulative impact of those many existing projects includes serious reduction in water quantity and quality (including temperature), exacerbation of the whirling disease epidemic, and other environmental problems. These past impacts should be thoroughly discussed in the "cumulative impacts" section of the analysis. *See* 40 CFR 1508.7 ("Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions . . .); *see also Lands Council v. U.S. Forest Service*, 395 F.3d 1019, 1028 (9th Cir. 2004). According to Grand County, on average, 65% of the total water in the headwaters of the Colorado River System is already diverted to the East Slope by existing transmountain projects, and that percentage will increase to 85% if both the WGFP and Denver Water's planned Moffat Collection System expansion are implemented. [2] CRR has already suffered adverse environmental impacts that are directly attributed to these lower river flows, including high temperatures resulting in fish mortality, increased nutrient loading, didmyo (or "rock snot" – a nonnative algae creating thick, slippery mats on what was formerly a rock and gravel river bottom), and the spread of WD. CRR joins other commentators in noting that the impacts of Denver Water's planned expansion of its Moffat Collection System Project should be considered in detail, and in connection with the WGFP. A single EIS evaluating the impacts of both projects is the only way to guarantee a complete understanding of the combined impact these projects will have on stream flow and the environment in the vicinity of CRR. [2] Grand County has prepared and submitted the graph that is also attached here as Exhibit A. It compares the historic Colorado River hydrograph at Hot Sulpher Springs against the impact of various transmountain diversion projects, including Windy Gap. 27655 6	4. The Affected Environment section for each of the resources discussed in the FEIS defines the condition of resources based on past and present actions and activities in the Colorado River basin. The cumulative effects analysis then adds in the incremental effects of the Proposed Action with other reasonably foreseeable future actions to assess likely effects. Reasonably foreseeable actions included the Moffat Project and the hydrologic and associated changes that would come with operation of that project and other projected changes in the basin as identified in Section 3.5.3 of the FEIS. The same level of analysis was conducted for cumulative effects as for direct project effects. As mentioned in response to Comment No. 3, a number of additional mitigation measures are included in the FEIS including a commitment avoid additional nutrients inputs to the Three Lakes system from the WGFP. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

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4	A complete analysis of the past cumulative impacts of other water projects on the river must include an honest assessment of the central role that Windy Gap Reservoir has played in the spread of WD. Where such a discussion might reasonably be expected in the subject DEIS, the document states instead, "[t]he existing habitat conditions are generally favorable for all the fish species collected." (DEIS at 3-130). In light of the complete destruction of the Colorado River rainbow trout fishery below Windy Gap, and the continuing presence of WD in the river, this comment must be changed. The science is irrefutable: "The fishery in the upper Colorado River downstream from Windy Gap Dam continues to suffer the ill effects of the whirling disease epizootic, with the rainbow trout population in particular exhibiting much lower levels of abundance and biomass than a decade ago."[3] As Charlie Meyers, the Outdoor writer for the Denver Post, summarized in the column that is attached as Exhibit B, "Windy Gap has been identified as the principal culprit in the infestation of the upper river where it pours from the water diversion project 3 miles west of Granby."[4] In contrast to the many published scientific papers documenting the central role of Windy Gap reservoir in spreading WD, the DEIS simply states, without citing any supporting authority, that "Windy Gap is no longer considered a major source of TAM [the worm that releases the WD parasite] in the upper Colorado River." (DEIS at 3-133). In a similarly conclusory and unsupported statement, the DEIS asserts: "None of the alternatives are expected to increase the development conditions for the spread of WD in the Windy Gap Reservoir . . .". (DEIS at 3-142). Given the documented devastation of the rainbow trout fishery caused by the WD spread from Windy Gap, this is a grossly insufficient analysis of a critical environmental issue. More is required. The DEIS should be revised to add a thorough analysis of the direct and cumulative impacts of the WGFP in combination with historic operations of the CBT and other transbasin diversions, including the planned Moffat expansion. Only with an honest assessment of the cumulative impact of all of these projects can appropriate mitigation measures be developed.	See response to Comment No. 3 on whirling disease. We are aware of the whirling disease studies that were conducted in Windy Gap Reservoir and downstream of Windy Gap Reservoir in the Colorado River. The discussion on Windy Gap Reservoir in Section 3.9.1.4 of the FEIS includes additional discussion citing CDOW references on whirling disease, which indicate that whirling disease is still present, but there appears to be a shift in the species of tubifex worms in the reservoir. The current species are not carriers of whirling disease in the same number as previously sampled in Windy Gap Reservoir. Studies concluded that habitat modifications did not result in significantly lower infection rates, as shown by the prevalence of whirling disease myxospores in young trout.
5	**5. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the most recent period of record.** Reclamation appears to have "cherry-picked" the period of record it analyzes. The study period that is used between 1950-1996 begins and ends with wet years. The most	The WGFP FEIS and associated hydrologic modeling and resource evaluation fully considered the cumulative impacts of the Moffat Collection System Project, C-BT Project; and other past, present, and reasonably foreseeable actions. 5. The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (e.g., flow, diversion, evaporation, and precipitation) was readily available through that year, and the State's CDSS model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling, (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take

[3] Nehring and Thompson, North American Journal of Fisheries Management 23:376-384, 2003; *see also* "Colorado's Cold Water Fisheries: Whirling Disease Case Histories and Insights for Risk Management", Colorado Division of Wildlife, Aquatic Wildlife Research, Special Report No. 79, Nehring 2006.

[4] Mr. Meyers went on to explain the magnitude of the loss: "The loss cut even deeper because these are no ordinary trout. Specifically noted as the Colorado River strain, these rainbows evolved over the years as a kind of super trout. DOW identified them as the cornerstone of a hatchery program aimed at spreading these highly successful river fish to many other streams around the state. Now the very source of the program was being lost."

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		into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002 and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available as opposed to available storage capacity. o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical with respect to Windy Gap yield than 2002. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrates the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950s drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years.

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5	recent 12 years (1997 – 2008) should have been included. The past twelve years have been generally dry years, and are certainly significant for modeling the impacts of the WGFP into the future. By ignoring the last 12 years, Reclamation has ignored both the record drought year in 2002, and also the year of the greatest diversion under the Windy Gap water rights, which occurred in 2003. The limited period of study also ignores the change in the Colorado River call regime resulting from the 2003 Shoshone call agreement. The greatest diversions to the Front Range have occurred after this agreement was entered. The full available period of record should be studied.	The Shoshone call agreement was sufficiently analyzed as a reasonably foreseeable action for cumulative effects. The hydrologic effects of the Shoshone call agreement are discussed in Section 3.5.3.2 of the DEIS under the subsection Colorado River, and in more detail in Section 8.4.2.6 of the Water Resources Technical Report. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the firming project would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked.
6	**6. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the science on climate change.** The DEIS cites an outdated 2001 report from the Intergovernmental Panel on Climate Change (IPCC) for the proposition that "predictions on changes in precipitation in the Colorado River Basin range from substantial increases to substantial decreases" to conclude that potential impacts of climate change should not be included in the analysis due to uncertainty. (DEIS 2-44). The DEIS has not, but must consider the best and most recent science on climate change. Including the following: • The IPCC's 2008 Technical Paper on Climate Change and Water states with "high confidence" that "many semi-arid and arid areas (e.g., . . . the western USA . . .) are particularly exposed to the impacts of climate change and are projected to suffer a decrease of water resources due to climate change." • On October 6, 2008, scientists from NOAA, the University of Colorado, and Colorado State University released a report on behalf of the Colorado Water Conservation Board for the benefit of state water planners. The report synthesizes the most current climate science, and projects decreases in runoff for the Upper Colorado due to climate change ranging from 6% to 20% by 2050. It cites one streamflow model that projects a 45% decline by 2050. • The October 2007 EIS for the "Colorado River Interim Guidelines" prepared by the Bureau of Reclamation's Lower Colorado office contained a 100-page appendix evaluating the state of climate science, potential impacts of climate change on the Colorado River Basin, and options for evaluating the effects of climate change on reservoir operations. In contrast, the WGFP DEIS dismisses the potential impacts of climate change in relation to the preferred alternative in a single page. • Starting October 8, 2008, Governor Ritter hosted a three day conference on drought and climate change. The stated purpose of the event was to "help water providers, manager and planners from the public and private sectors prepare for the effects of drought and climate change by sharing the latest research, lessons and best practices." In short, there is scientific consensus that Colorado water resources will be altered by climate change. Reclamation must consider the best and most recent science, some of 27655 8	6. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS.

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6	which is noted above, and take a much harder look at climate change in relation to the impacts of the proposed WGFP.	
7	**7. Failure of the DEIS to address the negative impact of the preferred alternative on private fishing, and private property values in the most impacted reach below Windy Gap reservoir.** Finally, the DEIS completely fails to consider the economic consequences that the environmental impacts of the WGFP will have on CRR and other private lands along the Colorado River below Windy Gap. Water is generally an essential component of the tourist/agricultural/recreation economy in Grand County, but also a major component of the value of the private ranches like CRR on the Colorado River. While the DEIS documents the negative economic impacts of the WGFP on boating and many forms of public recreation, it is completely silent on the impact to private property values. The DEIS must honestly address those impacts, including whether the proposal will effect the "Gold Medal" trout fishery designation, and discuss what impact that would have for private property values, and tax revenues in Grand County. Those possible economic effects are directly related to the environmental impact of the project and should be studied. 40 CFR § 1508.14. **CONCLUSION** The DEIS does not contain a sufficient analysis of the environmental impacts of the proposed WGFP. It is silent on some very important points, such as the impact of the WGFP on private property values, and the mitigation that could be made by taking Windy Gap off-channel. Worse, in other critical respects, the DEIS is affirmatively misleading, as with the use of an artificially high baseline from which to measure the impacts of the new proposed project. The document we have reviewed simply does not comply with the basic informational purpose of NEPA. These problems and omissions can only be cured by a new DEIS or supplemental EIS, with adequate opportunity for federal decision makers and the impacted public to review and comment on the new document. Thank you for the opportunity to comment. CRR looks forward to continued involvement in the EIS process to make sure the environmental impacts of the WGFP are accurately addressed. CHIMNEY ROCK RANCH By: _____ Fritz Holleman, Attorney for CRR. cc: Vernon A. Isaacs, Jr. 27655 9	7. Potential effects of hydrological changes on commercial and private fishing opportunities are described in the FEIS. The aquatic resources analysis determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. As reported in the Recreation section, effects of the proposed alternatives on land-based recreation activities and aesthetics in Grand County are not expected to be measurable. Thus, there should not be a corresponding decrease in property values along the Colorado River below the WGFP. The "Gold Medal" trout fishery policy was adopted in 1992 by the Colorado Wildlife Commission. This designation is limited to "waters of the State accessible for fishing to the general angling public." Only public waters are designated as Gold Medal; private waters are excluded by the above requirement. To be eligible for designation, the water must consistently produce a minimum standing stock of 60 pounds of trout per acre and a minimum of 12 quality trout (>14 inches long) per acre. The Colorado River public waters currently designated as Gold Medal meet these criteria (The current population estimates are 131 pounds per acre and 51 fish greater than 14 inches.). It is assumed that CDOW management of the river will continue as it has in the past, and the Gold Medal designation will remain in place. Mitigation for potential impacts to aquatic resources from the WGFP are addressed the Fish and Wildlife Mitigation Plan as described in response to Comment No. 3. As a result, no adverse impact to the Gold Medal designation is expected.

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WGFP 1060

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VIA EMAIL WTULLY@gp.usbr.gov and U.S. MAIL

Tully

Mr. Will Tully
Bureau of Reclamation
11056 West County Road 18E
Loveland, CO 80537-9711

Re: Windy Gap Firming Project Draft Environmental Impact Statement.

Dear Mr. Tully:

This firm represents the Clinton Ditch and Reservoir Company and the Eagle Park Reservoir Company (collectively, the "Reservoir Companies"). As detailed below, the Reservoir Companies are concerned about the impacts of the Windy Gap Firming Project ("WGFP") on West Slope water supplies. On behalf of the principal shareholders and the boards of directors of the Reservoir Companies, we submit the following comments on the WGFP Draft Environmental Impact Statement ("DEIS").

The Clinton Ditch and Reservoir Company is the owner and operator of Clinton Gulch Reservoir, and the water rights thereto. The current shareholders consist of the Town of Breckenridge; Copper Mountain Metropolitan District; Copper Mountain Resort, Inc.; the Town of Dillon; Dundee Realty U.S.A., Inc. d/b/a Arapahoe Basin Ski Area; the Town of Silverthorne; the Board of County Commissioners of Summit County; Vail Summit Resorts, Inc. d/b/a Breckenridge Ski Resort; Vail Summit Resorts, Inc. d/b/a Keystone Resort; and Winter Park Recreational Association. These shareholders represent every major water user and water provider in Summit County and the largest ski resort in Grand County.

The Eagle Park Reservoir Company is the owner and operator of Eagle Park Reservoir, and the water rights thereto. The principal shareholders consist of the Eagle River Water and Sanitation District; the Upper Eagle Regional Water Authority; and Vail Associates, Inc. The Eagle River Water and Sanitation District and Upper Eagle Regional Water Authority comprise the second largest municipal water provider on the West Slope, serving approximately 60,000 customers in Eagle County, with a service area that extends from the Town of Vail to Wolcott.

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	Vail Associates, Inc., is a wholly owned subsidiary of Vail Resorts, Inc. which, in turn, owns and operates the Vail, Beaver Creek and Arrowhead ski areas and related resort properties. The Reservoir Companies and their shareholders collectively own hundreds of decreed water rights and water storage and conveyance facilities throughout the Colorado River basin. Our overriding concern is that the WGFP DEIS has inappropriately limited its analysis of West Slope impacts to the direct impacts felt in Grand County, and has not adequately considered the intricate physical and legal relationships that cause the impacts of any increased transmountain diversions from the Colorado River to ripple through all of the watersheds in the Upper Colorado basin. In short, any additional transmountain diversion out of the Colorado River will put additional pressure on West Slope water supplies and adversely impact the West Slope's important recreation economy. We believe the DEIS must more thoroughly study those broader impacts. Our comments below are organized around the issues that cause the greatest concern for the Reservoir Companies, as follows: 1. Failure of the DEIS to address Senate Document 80 and the protections for the West Slope in that document. 2. Failure of the DEIS to address Colorado water rights law and the proposed expansion of the Windy Gap water rights that is apparent in the proposed action. 3. Failure of the DEIS to sufficiently address the serious cumulative environmental impacts that the Colorado Big-Thompson Project, Windy Gap, and other transmountain diversion projects have already caused, and that the WGFP and Denver Water's planned Moffat Collection System expansion will exacerbate. 4. Failure of the DEIS to discuss a real "no-action" alternative that characterizes the status quo and can serve as an accurate baseline against which the impacts of the WGFP can be measured. 5. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the most recent period of record. 6. Failure of the DEIS to adequately discuss mitigation for the West Slope. **DISCUSSION** The purpose of an EIS prepared under NEPA is to accurately inform both the public and federal decision makers concerning the environmental impacts of any proposed federal action. *See Baltimore Gas & Elec. Co. v. Natural Resources Defense Council,* 462 U.S. 87, 97 (1983); *Sierra Club v. United States Dep't of Energy,* 287 F.3d 1256, 1262 (10th Cir.2002). We are concerned that the WGFP DEIS serves neither of these purposes. 27842 2	

Com-ment	Letter #1060	Response
1	**1. Failure of the DEIS to address Senate Document 80 and the protections for the West Slope in that document.** Because the WGFP will rely on Colorado-Big Thompson ("CBT") facilities, Reclamation must determine whether the WGFP complies with Senate Document 80, the federal statute that authorized construction of the CBT project. Senate Document 80 contains requirements for use of CBT water on the East Slope, use of Green Mountain Reservoir for West Slope beneficiaries, and a number of provisions that specifically protect the headwaters of the Colorado River system in Grand County. Recognizing that CBT would "change the regimen of the Colorado River below Granby Reservoir[,]" Senate Document 80 sets out "primary purposes" for the operation and management of the CBT project, as follows (1) to preserve the vested and future rights in irrigation; (2) to preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and Rocky Mountain National Park; 3) to preserve the present surface elevations of the water in Grand Lake and to prevent a variation in these elevations greater than their normal fluctuations ….; 5) to maintain conditions of river flow for the benefit of domestic and sanitary uses of this water. The DEIS recognizes the obligation to consider Senate Document 80, but with respect to the ability of the WGFP to comply, states: "This determination will be made available at a later time and is not part of this EIS." (DEIS at 1-42). This is backwards. No aspect of the WGFP, including any further environmental review, should occur until there is a determination concerning whether WGFP can comply with Senate Document 80, and the "primary purposes" set out above. See 40 CFR §§ 1508.27, 1502.16(c), 1506.2(d)(requiring an EIS to discuss any inconsistency between the proposed project and any federal, state or local plan or law).	1. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
1a	The failure to consider the protections in Senate Document 80 is of particular concern at present, because, as you are undoubtedly aware, the Bureau of Reclamation has placed a moratorium on issuing new contracts for Green Mountain Reservoir water. In other words, the facility that was built to mitigate the impacts of the CBT project transmountain diversions is not presently available for West Slope water users. There should not be any new transmountain diversions for WGFP or any other plan until this situation is resolved.	1a. The purpose of the WGFP EIS is to disclose the effects of implementing the proposed WGFP. As part of the evaluation discussed in the response to Comment No. 1, Reclamation will assure that the proposed project will not adversely affect operation of the C-BT Project.
2	**2. Failure of the DEIS to address Colorado water rights law and the proposed expansion of the Windy Gap water rights that is apparent in the proposed action.** The Reservoir Companies are concerned that the "pre-positioning" concept for the exchange of Windy Gap and CBT water rights exceeds what is allowed by the relevant water right decrees. The DEIS explains this "prepositioning" as follows: Prepositioning would involve the use of available Adams Tunnel capacity to deliver CBT water into [the newly constructed] Chimney Hollow Reservoir to occupy storage space that is not occupied by Windy Gap water. The delivery of CBT water from Granby Reservoir into Chimney Hollow Reservoir would create space for Windy Gap water in Granby Reservoir. When Windy Gap water is 27842 3	2. C-BT water rights issues: The Subdistrict is not proposing an expansion of the Windy Gap water rights. All diversions after the WGFP is constructed will be in accordance with the current water rights for the Windy gap project. Whether or not prepositioning requires a change of the Windy Gap water rights will be part of the evaluation discussed in the response to Comment No. 1. This evaluation will also include an analysis of the effects on C-BT Project water rights to assure that they are not adversely affected.

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2	diverted into Granby Reservoir, the CBT water in Chimney Hollow Reservoir would be exchanged for a like amount of Windy Gap water in Granby Reservoir. (DEIS ES-6). The Reservoir Companies share the concern expressed by Grand County, the Colorado River Water Conservation District ("CRWCD"), Trout Unlimited and others that this proposal violates important principles of state water law. First, the Windy Gap water rights are not decreed for storage in Chimney Hollow or Granby. Second, the CBT water is not decreed for storage in Chimney Hollow. The water rights cannot be stored as planned without a change of water rights under Colorado water law to ensure that there is no expansion of use, and no injury to other water users as a result of this new proposal. The DEIS does not address this issue, except to cite a comment by the previous State Engineer concerning administration. (DEIS at 3-7). There is no point in further analyzing a project that cannot be implemented under state law. See 40 CFR §§ 1508.27, 1502.16(c), 1506.2(d).	
3	**3. Failure of the DEIS to sufficiently address the serious cumulative environmental impacts that CBT, Windy Gap, and other transmountain diversion projects have already caused, and that the WGFP and Denver Water's planned Moffat Collection System expansion will exacerbate.** As Grand County has clearly communicated, the peak of the historic hydrograph represented by the annual high-spring snowmelt runoff has already been taken from the Colorado River system. According to Grand County, on average, 65% of the total water in the headwaters of the Colorado River System is already diverted to the East Slope by existing transmountain projects, and that percentage will increase to 85% if both the WGFP and Denver Water's planned Moffat Collection System expansion are implemented. Those massive diversions have had serious environmental impacts on the West Slope, and put additional pressure on water rights and water supply in the entire Upper Colorado basin. These past impacts should be thoroughly discussed in the "cumulative impacts" section of the analysis. *See* 40 CFR 1508.7 ("Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions . . .); *see also Lands Council v. U.S. Forest Service*, 395 F.3d 1019, 1028 (9th Cir. 2004). With respect to the future impacts of the WGFP in connection with Denver's planned Moffat Collection System expansion, we believe that a single EIS evaluating the impacts of both projects, as additive depletions on top of the many transmountain diversions that already impact this river system, is the only way to guarantee a complete understanding of the combined impact these projects will have on the environment and the water rights regime in the entire Upper Colorado River basin. We join those other West Slope entities asking that you seriously consider a new NEPA document that analyzes the combined impact of these two projects.	3. The Affected Environment section for each of the resources discussed in the EIS defines the condition of resources based on past and present actions and activities in the Colorado River basin. The cumulative effects analysis then adds the incremental effects of the Proposed Action with other reasonably foreseeable future actions to assess likely effects. Reasonably foreseeable actions include the Moffat Project and the hydrologic and associated changes that would come with operation of that project, and other projected changes in the basin. (See Section 2.8 of the EIS) The same level of analysis was conducted for cumulative effects as for direct project effects. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis includes hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
4	**4. Failure of the DEIS to discuss a real "no-action" alternative that characterizes the status quo and can serve as an accurate baseline against which the impacts of the WGFP can be measured.** The consideration of alternatives to the preferred action is the "heart" of every NEPA analysis. 40 C.F.R. § 1502.14. As part of the "reasonable range of alternatives" that must be 27842 4	4. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connection to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For WG and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT

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4	discussed, an EIS must "include the alternative of no-action." 40 C.F.R. § 1502.14(d). The consideration of a "no-action" alternative is intended to require that "agencies compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo." *Custer County Action Assoc. v. Garvey,* 256 F.3d 1024, 1040 (10th Cir.2001). For the "no-action" alternative, "the current level of activity is used as a benchmark." *Id.* The Reservoir Companies share the concern of other commentators that the DEIS uses an artificial baseline as the starting point to analyze the impacts of the WGFP. In particular, there is no basis to include the increased diversions that would result from the speculative expansion of Ralph Price Reservoir by the City of Longmont within the "no action" alternative. We are similarly concerned that the DEIS misrepresents the current level of Windy Gap diversions. In its comment letter, Grand County explains that the existing annual average diversions by Windy Gap have been closer to the 11,080 AF reported in the Water Resources Technical Appendix to the DEIS (Table 3, at 22) than the over 36,000 AF that are used to describe the existing condition in the DEIS analysis. (See DEIS Table 3-2, at 3-9). The lack of an accurate baseline from which to measure the impacts of the WGFP is a deficiency that infects the entire document. Until a new DEIS with an analysis of the impacts of the WGFP against an accurate baseline is presented, federal decision-makers and the interested public have no basis to understand the actual impacts of the WGFP. *See Half Moon Bay Fishermans' Mktg Ass'n v. Carlucci*, 875 F.2d 505, 510 (9th Cir. 1988)("Without establishing the base line conditions which exist, there is simply no way to comply with NEPA."). A new NEPA document is required.	Project system. (See CEQ 40 Questions, No. 3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is reasonable action for the City of Longmont and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts, included under the No Action alternative entail increased Windy Gap diversions by participants which they can currently do without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative or that the No Action alternative should be no diversions.
5	**5. Failure of the DEIS to address the likely environmental impacts of the preferred alternative in light of the most recent period of record.** Reclamation appears to have "cherry-picked" the period of record it analyzes. The study period that is used between 1950-1996 begins and ends with wet years. The most recent 12 years (1997 – 2008) should have been included. The past twelve years have been generally dry years, and are certainly significant for modeling the impacts of the WGFP into the future. By ignoring the last 12 years, Reclamation has ignored both the record drought year in 2002, and also the year of the greatest diversion under the Windy Gap water rights, which occurred in 2003. The limited period of study also ignores the change in the Colorado River call regime resulting from the 2003 Shoshone call agreement. The greatest diversions to the Front Range have occurred after this agreement was entered. The full available period of record should be studied.	Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment.
6	**6. Failure of the DEIS to adequately discuss mitigation for the West Slope.** The DEIS effectively treats mitigation as a laundry list with minimally described possibilities, but no meaningful analysis. (DEIS 3-292-295). For many of the listed items, even the mitigation proposal is vague and speculative, including things that "might be" done if deemed appropriate by the proponent of the project. This is not the meaningful or informative analysis of mitigation required in a NEPA document. *See, Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 353, (1989)). Without real mitigation proposals, and a discussion of the 27842 5	The comment indicates that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of

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		water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action. In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 5. The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (e.g., flow, diversion, evaporation, and precipitation) were readily available through that year, and the State's CDSS model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology, and in particular 2002, would change conclusions regarding WGFP yields and associated hydrologic changes. The period from 1997 through 2003 was analyzed in a spreadsheet exercise using Excel. A copy of the technical memorandum, *Significance of 2002 Hydrology to WGFP Modeling (Meg Frantz September 27, 2004)*, which summarizes that analysis, was provided to Grand County at a meeting on March 4, 2005. At Grand County's request, the analysis was subsequently updated to take into account the "relaxation" of the Shoshone call. Key conclusions of that analysis are: o The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002 and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002, with or without a WGFP reservoir, because Windy Gap diversions would be limited by the amount physically and legally available as opposed to available storage capacity.

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		o The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows there are other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield. The current model study period also addressed the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years like 2002 and 2003. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. The Shoshone call agreement was sufficiently analyzed as a reasonably foreseeable action for cumulative effects. The hydrologic effects of the Shoshone call agreement are discussed in Section 3.5.3.2 of the DEIS under the subsection Colorado River, and in more detail in Section 8.4.2.6 of the Water Resources Technical Report. While Windy Gap diversions may increase under a Shoshone call reduction, diversions with or without the WGFP would be the same since available storage capacity in Granby Reservoir would not be a limiting factor in dry years when the call reduction would be invoked.

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6	extent to which they actually would or would not effectively mitigate WGFP impacts, there is very little in this section that can be said to inform either federal decision-makers or the public. Among other mitigation proposals that should be addressed, the DEIS should consider the Grand County Stream Management Plan. There is no discussion of the carefully crafted flow recommendations in that document in the mitigation section. The new DOI NEPA regulations direct Reclamation to "consult, coordinate, and cooperate with relevant State, local and tribal governments . . . concerning the environmental effects of any Federal action within the jurisdictions or related to the interests of these entities." 73 Fed. Reg. 61317 (to be codified at 43 CFR § 46.155). In light of that direction, the County's Stream Management Plan should be the guiding document in evaluating proposed mitigation. Although the DEIS rejects water conservation as an alternative, it does not explain why water conservation by the Front Range communities that would receive this additional Windy Gap water should not be added as an additional mitigation measure. The DEIS does, after all, recognize that "[t]o meet future water requirements will require continued improvements in water conservation in addition to the proposed WGFP." (DEIS 1-18). Similarly, the DEIS does not, but should have discussed in the mitigation section a requirement that WGFP participants reuse to extinction all or a significant portion of their Windy Gap water. **CONCLUSION** The DEIS does not contain a sufficient analysis of the environmental impacts of the proposed WGFP. The problems and omissions can only be cured by a new DEIS or supplemental EIS, with adequate opportunity for federal decision makers and the impacted public to review and comment on the new document. Thank you for the opportunity to comment. The Reservoir Companies looks forward to continued involvement in the EIS process to make sure the impacts of the WGFP are accurately addressed. CLINTON DITCH & RESERVOIR COMPANY EAGLE PARK RESERVOIR COMPANY By: GEP Glenn E. Porzak, General Counsel cc: Eagle Park Reservoir Company Board of Directors Clinton Ditch and Reservoir Company Board of Directors 27842 6	6. Additional mitigation measures were defined and developed to avoid or minimize adverse effects from implementing the Proposed Action. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25. Mitigation includes the Fish and Wildlife Mitigation Plan (FWMP) developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS is to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to avoid or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS, may help meet some of the goals of the SMP. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. Reclamation cannot require how an entity uses its water rights. As mentioned in Chapter 1 of the FEIS, Participants would be reusing their Windy Gap water as best suited for their specific circumstances. For some Participants, this includes a capture and reuse program for nonpotable irrigation; for others, a second use of Windy Gap water is used to augment other depletions. When Windy Gap water deliveries become reliable through a firming project, Participants can better plan the most efficient way to reuse this water.

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	WGFP 381 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Becky Long MS. LONG: Thank you. My name is Becky. L-o-n-g, on the last name, as you might imagine. And I am here today on behalf of the Colorado Environmental Coalition. We are a state-based citizens group including about 4,500-and-counting individual members and approximately 100 member organizations. We work statewide to advocate for Colorado's clean air, plains and water. The Colorado River is one I particularly hold near and dear, as I was born just down the road from Kremmling, by Dr. Ceriani, as I imagine several people in this room were. Our vision on water is to develop and advocate for a sustainable water supply and management decisions that both sustain the environment and the economy of Colorado in order to conserve, protect, and restore Colorado's rivers. In 2005, CC, along with Western Resource Advocates and Trout Unlimited, released a report entitled "Facing Our Future," which presents a compilation of communities' vision for a balanced water future. This looks at several methods that the Front Range, specifically the South Platte and Arkansas Basin on the Front Range, could utilize for new supplies. This ranges from conservation and efficiency measures all the way up to new supplies. That's right, environmental groups advocating for building new supply. Essentially, this report says maybe that there is potential for certain projects to do better. And one of the projects we highlighted with that report was the Windy Gap Firming Project. I have a few requests tonight, and I'll try to be brief, as additional written comments will be forthcoming. First of all, I would like to underscore our previous written request for a comment extension. We feel it appropriate and would provide significant public review and then more thorough review of the public comment process and of the DEIS. Secondly, I would like to speak a little about the Front Range conservation measures. I was able to attend the meeting in Loveland the other night, as	

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1	well, and heard quite a bit about what is being done on the Front Range for conservation. Unfortunately, there wasn't a lot of discussions about what is not being done, so I assume they are doing quite a bit, as we heard Greeley saying. Not all of the participants in the Windy Gap Firming process are. In fact, there is no single standard that all participants meet to comply with this project, when it comes to conservation. Some have very good water rate structures that send a strong conservation signal to their customers. Others, like the City of Broomfield or the City of Loveland, have a flat-rate structure, which means you use as much water as you want and pay the same, whether you are using a thousand gallons a month or whether you are using 60,000 gallons a month. So there is big difference between some of the water conservation methods outlined by participants in this project. Next, I would like to speak a little about the West Slope impacts that we have some strong concerns with. As I noted earlier, we work on both economic sustainability as well as environmental sustainability. The economic analysis in the DEIS specifically regarding recreation has some figures that are a little short, perhaps.	1. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.
2	Currently, the DEIS uses figures for an average day of fishing in the area and then uses that information to determine the average day of commercial fishing. There is quite a bit of difference between myself coming up to fish on the Colorado River, the Fraser River, as myself, or if I'm going out on a professionally guided service. I imagine I'm paying significantly more than $50 for a high-end guided tour. Additional studies and assessments are needed to look at what those figures really ought to be. That goes for both recreation and fishing. Additionally, the cumulative impact and need for corporation amongst the Front Range diversion on that stretch are important.	2. Economic values for fishing are not reported in the EIS because although reduction in Colorado River fish habitat is projected with reduced streamflow in some years, this is not expected to translate to an adverse impact to fish populations and fishing success, as discussed in the Recreation section. Commercial fishing visitor days are reported in the Recreation section of the FEIS.
3	Next, the impacts on maintaining the outstanding, remarkable values of the stream segments below Windy Gap Firming that have been highlighted for a while for an eligibility and suitability study.	3. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. The Wild and Scenic designation process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, the decision on Wild and Scenic River status is a determination made by the BLM as part of the planning process and is not part of the evaluation for the WGFP EIS.
4	And, finally, the environmental impact of fisheries which will be impacted via a reduction of flows and temperature increases.	4. Potential impacts to fish due to changes in habitat, stream channel morphology, and water quality are described in Section 3.9.2 of the FEIS. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). The FWMP was developed to address adverse effects to fisheries from the WGFP, but some of the measures may help meet some of the goals of the Stream Management Plan.

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		Additional discussion clarifying potential impacts to fish was added to the Aquatic Resource section of the FEIS. Aquatic resource mitigation measures are described in Sections 3.8.4 and 3.9.4 of the FEIS.
5	Until meaningful conservation measures are in place in all the participant cities and until mitigation plans for the specific impacts are in place, and, finally, until the Grand County Stream Management Plan phase three is complete and those recommendations can be taken into account, we would ask you to not approve this permit.	5. See response to Comment No. 1.
6		6. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS and detailed in the FWMP (FEIS Appendix E) might help meet some of the goals of the SMP.

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1	COLORADO ENVIRONMENTAL COALITION Colorado's voice for conservation since 1965 DENVER 1536 Wynkoop Street, 5C Denver, CO 80202 303.534.7066 GRAND JUNCTION 546 Main Street, #402 Grand Junction, CO 81501 970.243.0002 CRAIG 11 W. Victory Way, #208 Craig, CO 81625 970.824.5241 December 23, 2008 VIA EMAIL: WTULLY@gp.usbr.gov Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 VIA EMAIL: chandler.j.peter@usace.army.mil Mr. Chandler Peter, P.E. Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 **Re: Windy Gap Firming Project Comments Draft Environmental Impact Statement CWA § 404 Permit Application** Dear Mr. Tully and Mr. Peters, We are pleased to offer the following comments on the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) and on the U.S. Army Corps of Engineers (USACE) notice of CWA § 404 permit application. The undersigned organizations represent thousands of Coloradoans statewide, and share a collective vision to work towards the adoption of water supply and management decisions that are environmentally and economically sustainable in order to conserve, protect and restore Colorado's rivers. In addition to these comments, these organizations join the separate comments provided by Trout Unlimited, Western Resource Advocates, National Wildlife Federation, and Grand County. Our organizations have been following this project for several years, we continue to have a number of concerns. Our concerns as they relate to the DEIS follow. 1. The Purpose and Need Statement is too narrow, thereby improperly limiting the range of alternatives analyzed and precluding the Corps' required selection of the least environmentally damaging alternative: a. Early on, in the Public Scoping phase of this project, numerous groups, including ours submitted comments noting that the Purpose and Need Statement for this project is very narrow. This narrow statement has created an artificial comparison of this project to other alternatives. There cannot be a fair analysis of this project as it stands because many suitable alternatives have been cast aside due to this flawed and narrow Purpose and Need Statement. www.ourcolorado.org	1. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yield from Participant water rights that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap water represented a source of existing water available to the Participants, but required additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for other sources of water. Many of the WGFP Participants have additional future water needs beyond what will be available from the Windy Gap project after construction of the WGFP, and

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1	b. Many of the rejected alternatives would have provided less damaging alternatives to meet water supply needs and serve the public interest. c. The Supplemental EIS and should look at non-structural alternatives to WGFP, such as water conservation programs and dry-year leasing of irrigation water, which would not deplete the Colorado. These types of alternatives were filtered out under the narrow Purpose and Need statements, but could be viable alternatives to meet future demands.	will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.
2	2. Conservation and Efficiency Measures have not be adequately assessed or implemented by project participants: a. Like other issues addressed in this letter, we have had many concerns about the lack of conservation and efficiency since early on in this project. Currently there is no meaningful discussion of conservation and efficiency in this DEIS. Conservation and efficiency measures do require an investment of time and resources to be successful, these investments however would be far less than the money to be spent (and spent to-date in many cases) on the Windy Gap Firming Project. b. Many of the participants are doing the bare minimum for conservation, some less than that. Only one community, Greeley, seems to have actively sought to implement strong measures towards conservation and efficiency, and they too could see increases in success with additional investments. Many communities on both the West Slope and Front Range would appreciate having additional water supplies, such as those potentially gained from this project. Ensuring responsible and efficient use of those supplies should be a top priority for Northern, the individual participants and the permitting agencies. c. In a recent presentation, the Colorado Water Conservation Board assumed a 25% reduction in average per capita water use between 2000 and 2030. WGFP communities must adopt, at a minimum, the State's conservation objectives. With this level of reduction, the project participants' existing supplies will meet demand through 2030. When the other proposed projects in the region are considered – NISP and its alternatives, Broomfield Reservoir, and Halligan/Seaman Reservoir expansion – firm supplies could exceed participants' demands through 2050, alleviating the need for the Windy Gap Firming Project.	2. Water conservation is a component of each of the Participant's operations. Each participant has committed to, and will be required to maintain a state-approved conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. These conservation measures help conserve available water supplies and reduce demand, and as a result, can delay the timing of future water needs, but would not eliminate the need for the project. Additional discussion on Participant water conservation practices was added to Sections 1.6.2.3 and 1.7 of the FEIS.
3	3. Socio Economic and Recreation impacts inadequately assessed: 2	

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3	a. The Colorado River and tributaries provide not only recreational and cultural amenities to the western slope but also sustain the local communities and economies. These local economies ebb and flow with the River. Impacts felt on the stream will also be felt in economic terms. which are not only felt at the local level but at the state level as well. Tourism in Colorado generates more than $8 Billion annually, according to conservative estimates of the Colorado Tourism Board. In 2003 tourism generated $170 Million to Grand County alone. Significant amounts of tourism dollars, especially during summer months come from whitewater based recreation, these funds are vital for our entire state. b. The DEIS falls short of adequately assessing what these impacts will look like, and in many cases underestimates the impacts by using average figures not specific to the area or in some cases to the sector of the economy in question- as is the case with the assessment of impacts to commercially guided fishing.	3. The water rights in question were initially issued by the State of Colorado in 1980 as conditional rights and made absolute by Colorado in 1990 in Case No. 89CW298. No new water rights are being sought to implement the WGFP. The socioeconomic analysis (Section 3.22) quantifies the impacts to whitewater-based recreation using the best available information. Revisions to the Socioeconomic section were made to better refine estimates of impacts to boating from occasional decreases in preferred flows. Impacts to private or commercially guided fishing are not anticipated based on the assessment of aquatic resource impacts and with implementation of mitigation measures in the Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). See Sections 3.8.4 and 3.9.4 of the FEIS for aquatic resource mitigation.
4	4. Lack of assessment on impacts to downstream environments: a. There is little information in the DEIS on what the impacts of the project will be on the Colorado River below the confluence with the Blue River. . How will the Windy Gap Firming Project impact federal agencies abilities to manage areas which are eligible for designation under the Wild and Scenic River Act?	4. Colorado River hydrologic, water quality, aquatic, and recreation impacts were evaluated downstream of the Blue River based on data from the Kremmling gage. Hydrologic and other impacts diminish below the Blue River confluence because the Preferred Alternative would have less than a 7 percent impact on average monthly flows and less than a 3 percent impact on annual flows. The percent of flow reduction continues to diminish downstream with input from other tributaries. Section 7 consultation was completed on February 12, 2010 addressing effects of the WGFP on the Colorado River endangered fish species. Adverse effects are being mitigated in accordance with the requirements of the Programmatic Biological Opinion. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. This process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, the decision on Wild and Scenic River status is made by the BLM as part of their planning process and is not part of the evaluation for the WGFP EIS.
5	5. Incomplete assessment of direct, indirect and cumulative impacts: a. The DEIS fails to adequately assess the cumulative impacts of multiple projects relying on the same river. The DEIS fails to evaluate the impacts projects like the Colorado Big Thompson (CB-T) and Moffat Tunnel, which currently take over 50% of the river flows, have already had on the river resources. An analysis of the impacts of past water diversion projects is needed to understand whether the additional diversions of WGFP will push the river system over the brink, irreversibly damaging its resources.	
6	b. The DEIS should look closely at how WGFP and the anticipated Denver Water's Moffat Collection system expansion will change the river's hydrology and what impacts the change will have on its resources. These projects will reduce peak flows, extend periods of low flows, and create more drought-like conditions. The DEIS does not look at the extent and frequency of these changes, or at how these changes will impact the river's resources.	
7	c. The DEIS models anticipated stream conditions based on averages that mask important changes that could have a devastating effect on aquatic resources. Using a daily-step hydrological model would have 3	5. The WGFP FEIS considered past, present, and reasonably foreseeable future actions in the cumulative effects assessment. The C-BT Project is a past action that was included in the baseline hydrology, and was also used in the evaluation of cumulative hydrologic impacts and cumulative impacts to other resources. As described in response to Comment No. 6, the Moffat Project was evaluated in detail in the cumulative effects assessment.

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7	prevented this problem. Such model is used by Denver Water. Scoping comments and EPA letters strongly recommended that WGFP and the anticipated Moffat project be reviewed together in a single DEIS. Failure to do so results in a deficient WGFP analysis. Moreover, the DEIS' model significantly overestimates existing Windy Gap project diversions, as reflected by the Colorado State Engineer's records. In doing so, projected stream depletions and impacts associated with WGFP are grossly underestimated.	6. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis by 30,000 AF because Denver changed their estimate after the hydrologic modeling for the WGFP was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP.
8	d. The DEIS also fails to adequately assess the impacts on water quality of Lake Granby, Shadow Mountain Reservoir, and Grand Lake. Nutrient concentrations into the Three lakes are underestimated in the DEIS. As these concentrations contribute to high levels of algae growth, which also coincides with the pumping of Colorado River water into the Three Lakes, significant impacts will be seen. The DEIS under estimates these impacts, by using annual averages rather than a seasonal, monthly or daily average. The DEIS should evaluate impacts of the WGFP on Three Lakes by weighted by pumping schedules rather than averages.	7. The comment has three parts and the response is organized accordingly. a. Need for a daily-step hydrologic model: Two sets of daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data were used for evaluations of resources dependent on flows or reservoir storage contents and levels. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations.
9	6. Disregard of anticipated state stream temperature standards violation a. The DEIS acknowledges that operation of WGFP will cause violation of stream temperature standards established by the state to protect aquatic life. However, it proposes no firm mitigation measures to prevent such violations.	
10	7. Mitigation of impacts and inclusion of the Grand County Stream Management Plan: a. The DEIS discussion of mitigation measures is insufficient. Mitigation for identified impacts is not offered and where it is, the benefits are not explained and commitments to implement them are not made.	Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods with or without the alternatives assessed to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or daily basis, are the same for existing conditions, for the No Action Alternative, and for each of the alternatives. Because there are no hydrologic impacts due to the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for non-drought conditions.
11	b. Grand County has developed a Stream Management Plan that identifies flows needed to preserve the Colorado River's fisheries and recreational values. The DEIS fails to evaluate information provided in the plan to assess impacts on those resources or to consider it for mitigation purposes.	b. The WGFP EIS is deficient because the WGFP and Moffat Collection System Project were not reviewed in a single EIS: The cumulative effects analysis for the WGFP considered future diversions by the Moffat Project. The lead federal agencies for each EIS shared hydrologic data so that the model simulations of the
	We appreciate the opportunity to comment on this project, though overall are dissatisfied with the DEIS analysis and believe it fails to provide critical information needed for the Bureau of Reclamation and the USACE to make their respective decisions. A great deal more work needs to be done before this project should move forward. The fact that the Bureau of Reclamation's first duty is to operate the C-BT Project so as to accomplish its primary goals, including preservation of the Colorado River fisheries and recreational value, should be carefully weighed before	
	4	

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		WGFP and Moffat Project were consistent and in appropriate detail for each EIS. Additional text has been added to Section 3.5.2.2 of the FEIS on model simulations for the WGFP and the Moffat Project and discusses coordination of those modeling efforts. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps has coordinated on the assessment of cumulative effects and mitigation for the two projects. c. Windy Gap existing diversions are overestimated: Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were estimated based on the project's existing water rights, which are the same water rights that would be used to effect diversions after the WGFP is constructed. Recent diversions represent the Participants' need for water to meet water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Estimated Windy Gap diversions used in the model reflect recent Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008 (since Granby Reservoir last filled) averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, Reclamation believes that estimated pumping under existing conditions is accurate. The comment indicates that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.

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		Reclamation believes that the effects assessments based on net depletions to the Colorado River below Windy Gap are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 8. Nutrient concentrations in the Three Lakes were estimated in the DEIS using daily flow data from the hydrologic model and daily nutrient data based on measured data—data collected by the USGS, NCWCD, and USBR. The model was run on a daily basis. The results are summarized on an annual average and are also shown graphically on a daily basis in the WGFP Lake and Reservoir Water Quality Technical Report (AMEC 2007). Daily pumping schedules were accounted for in the model. 9. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.

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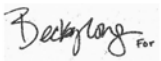
	decisions that will have impacts on those values are made. The upper Colorado River is truly a resource for all, and it is crucial for our state to ensure that we are protecting it and balancing the needs of its environment in the face of demands for additional water is crucial for our state. Sincerely,  Becky Long Colorado Environmental Coalition Bart Miller Western Resource Advocates Robyn Fugett Rocky Mountain Chapter of the Sierra Club Gary Wockner Clean Water Action Nathan Fey American Whitewater Cc: Honorable Senator Ken Salazar Honorable Senator-Elect Mark Udall Honorable Governor Bill Ritter Harris Sherman, DNR Jim Martin, CDPHE Larry Svoboda, EPA Region 8 Gene Reetz, EPA Region 8	10. Additional mitigation measures were defined and developed to avoid and minimize potential adverse effects of implementing the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS. 11. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP but could help meet some of the goals of the SMP.

Com-ment	Letter #121	Response
1 2	WGFP 121 **From:** helena powell [helenapaddles@yahoo.com] **Sent:** Thursday, October 16, 2008 5:01 PM **To:** wtully@gp.usbr.gov **Subject:** Windy Gap Firming - Economic impacts rafting industry **Attachments:** 2007_Commercial_Rafting_Use_Report.pdf Hi Will- Thank you for giving me the opportunity to speak at the public hearing in Granby. I have attached the Colorado River Outfitter Association Commercial Use report from 2007 (2008 season statistics will be available starting Feb. 2009). I made reference to some of these statistics in my brief presentation. You can look at the direct economic impacts and the multiplier effect from the rafting industry alone that would be jeopardized by the Windy Gap firming project. Points of note: 1. The Upper Colorado River alone had 31,997 **commercial** river user days which is over $3.4 million directly to the industry and an economic impact multiplier of **$8,725,809** in the Upper Colorado River tourist area. This is a large economic impact to our rural area! It has no data on the ADDITIONAL PRIVATE USERS and their economic impact, which should be considered as well. 2.The CROA study dates range from 1988-2007. I urge you please take more recent data into your EIS. The drought year of 2002 saw a loss of 40.1% overall in the rafting industry. Lesson: no water=no business. There are 52 commercial river outfitters permitted on this stretch that will be DIRECTLY NEGATIVELY affected by Windy Gap Firming. These are a few economic speaking points. I will be sending an additional email on environmental impacts. **Please extend the comment period 60 days.** **Please look at the impacts of this project in conjunction with the Moffat project.** Thank you for your time and attention in this matter. Helena Helena Powell PO Box 495 Tabernash, CO 80478 Helena Powell *ski all winter* *paddle all summer* Do You Yahoo!? Tired of spam? Yahoo! Mail has the best spam protection around http://mail.yahoo.com	1. The Socioeconomics section of the FEIS (Section 3.22.2.4) quantifies impacts on commercial boating from the alternatives. Impacts on private boating were quantified where estimates were available (e.g., Byers Canyon) and are at least partially covered by using a worst-case assumption of the complete loss of all boating when flows are less than the preferred range. Per CEQ guidance and regulations implementing the provisions of the National Environmental Policy Act, agencies are required to use the best available information and there is currently no reliable data for private boating use on the Upper Colorado, and most commercial use is downstream of Kremmling. 2. See response to Comment No. 1. The most recent commercial use data available from the Colorado River Outfitters Association (2007) at the time of the analysis were used. The available data for 2008 is not substantially different. In most dry years and drought years like 2002, Windy Gap water rights are not in priority and there would be no diversions.

Com-ment	Letter #118	Response
1	WGFP 118 To: Will Tully Bureau of Reclamation 11056 West County Road 18E Loveland, Colorado 80537 OCT 2 9 2008 From: Pete and Carol Petersen Colorado River Ranch P. O. Box 832 Kremmling, Colorado 80459 Tully 1340 C-BT 11/5/08 Subject: Windy Gap Draft EIS Comment Date: October 27, 2008 Dear Mr. Tully: We are irrigators on the Colorado River below Williams Fork Dam and a few miles east of Kremmling. We have electric pumps with stationary in-lets to irrigate our hay medows.When the flows in the river are low and our inlets are not covered at all or barely covered the pumps will not work, or at the least do not work efficiently. Also with low flows the moss is a problem plugging the in-lets, and with the water table so low it is harder to get the meows covered with the irrigation water. The time each of us irrigates with these pumps will vary a little, but our season is beginning of May to late fall, turning of irrigation water long enough to dry the meows for haying and get the hay put up. The water is turned back on for fall irrigation. One of your points of mitigation I read is, The Subdidtrict will curtail Colorado River diversions during the annual Big Gore Race, typically the third week in August, if flows at the Kremmling gage are below 2,200 cubic feet per second. Surely, Mr. Tully, for those of us in agriculture our livelihood is equally important as the recreation. As you move forward with your plans for the Windy Gap Firming Project, it is our hope you will consider the negative effects and impact it will have on those of us in Agriculture. Thank you in advance for considering our comments. Sincerely, Pete Petersen Carol J Petersen Official File Copy ENV-6.00 WGFP 245	1. The Subdistrict would comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In addition, the WGFP would comply with Colorado River bypass flow requirements established by the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir, 135 cfs below the Williams Fork, or 150 cfs below Troublesome Creek. The Windy Gap Project cannot divert if the agreed minimum flows are not met, even if Windy Gap water rights are in priority. Colorado River flows may fall below the minimum streamflow volumes when the WGFP is not pumping, particularly in late summer. The Subdistrict has no control over Colorado River flows when the Windy Gap Project is not pumping. The EIS points out in Section 3.18.2.3 that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of diversion for their water. Per the Azure Agreement, the Subdistrict funded $500,000 in improvements for ranches downstream from Windy Gap Reservoir to maintain their diversion structures on the Colorado River. The original Windy Gap Project included diversions greater than those in the WGFP. The Azure Agreement was developed to mitigate and address all objections to the Windy Gap Project. The Azure Agreement was signed by 30 ranchers. The WGFP will have no effect on how irrigators downstream of the C-BT Project are treated with respect to the requirements of Senate Document 80.

Com-ment	Letter #1063	Response
1	WGFP 1063 December 26, 2008 Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland CO 80537-9711 WTULLY@gp.usbr.gov Mr. Chandler Peter, PE Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton CO 80126-6901 chandler.j.peter@usace.army.mil RE: Windy Gap Firming Project Draft Environmental Impact Statement Transmitted by Email Dear Mr. Tully and Mr. Peters: Thank you for the opportunity to provide comment on the draft Environmental Impact Statement (DEIS). The Colorado Wildlife Federation has decided to endorse and join with Trout Unlimited in its comments and those of the Colorado Environmental Coalition, reflected in the attached letter. Our discussions with wildlife and fisheries biologists are in accord with those comments. We are deeply concerned with the future of the upper Colorado River and believe that the water needs of the Front Range populations must achieve a balanced outcome that accommodates the needs of fish and wildlife, as they are valued by Coloradans, contribute to the economy and are a fragile resource. In our view, the parties must reach an outcome that reflects the unique character of Colorado, our increasingly scarce water resource and importance of fish and wildlife. The DEIS fails to achieve such balance. We hope that by continuing serious work to shape the outcome, the process and result can serve as a model. Sincerely, Suzanne O'Neill Executive Director, Colorado Wildlife Federation 1410 Grant Street, Suite C-313, Denver, Colorado 80203 (303) 987-0400x1 Fax (303) 987-0200 www.coloradowildlife.org cwfed@coloradowildlife.org	1. Thank you for your comment. See responses to the Colorado Environmental Coalition (Comment Letter No. 883) and Colorado Trout Unlimited letters (Comment letter 1126).

Com-ment	Letter #1110	Response
1 2 3	Mr. Will Tully Bureau of Reclamation 11056 W CR 18E Loveland, CO 80537 Mr. Chandler J. Peter U.S. Army Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128-6901 Re: Windy Gap Firming Project Draft EIS Mr. Tully & Mr. Peter: As business owners and managers, we write to share our serious concerns with the proposed Windy Gap Firming Project (WGFP) and its potential impacts on the Colorado River and, by extension, on the regional economy. The Colorado River and its tributaries are the lifeblood of western slope communities, supporting economic drivers from recreation and tourism to agriculture. For example, in Grand County, every tourist activity relies directly on the natural flow of water – and visitor expenditures account for a majority of retail sales countywide. Maintaining a healthy Colorado River is not only essential to local ecosystems, but to the economic future of our region. Protection of the Colorado River should be a basic expectation for WGFP before any federal approvals are granted. Indeed, the Bureau of Reclamation has a legal responsibility to operate the Colorado-Big Thompson Project in a manner that furthers the primary purposes of the project. Those primary purposes include preservation of the Colorado River's fisheries and recreation opportunities. Accordingly, unless strict conditions are imposed on WGFP that will ensure that no harm will result, Reclamation must not approve the project. Unfortunately, the Draft Environmental Impact Statement fails to reasonably assess the impacts of the WGFP on the Colorado River's natural resources and the local economies that rely on them. In many places, the DEIS makes leaps that strain believability. For example, the DEIS anticipates that WGFP is "unlikely to noticeably affect recreation use" at Granby – despite information showing that the project would result in additional periods when boat ramps at Granby Reservoir would be inaccessible due to lower reservoir levels. The DEIS downplays consideration of cumulative effects of WGFP alongside historic operations so as to suggest that there will be little effect on fisheries or fishing – despite information showing that periods of lower flow will become more common and that state water quality standards for temperature will be violated. As local businesses, it seems to us that the DEIS is asking our communities to take a leap of faith that WGFP is benign despite – not because of – the evidence. Perhaps the most serious flaw is the DEIS' failure to consider the broad-based economic effects of reduced recreation and the ripple effects through the regional economy. The DEIS excludes from consideration many key aspects of the recreation economy by limiting consideration to active recreation where there is public access. This narrow analysis fails to include many key economic factors for the west slope: - potential failure of irrigation systems due to reduced streamflow; - ranchers who rely on fishing leases along the Colorado River; - real estate and resort developments where a healthy Colorado River is a primary or sole asset;	1. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 2. Granby Reservoir water levels have fluctuated widely in the past and would continue to do so in the future. In average years, all boat ramps would remain accessible in the summer under the action alternatives, except for Arapaho Bay in May. In dry years, the Arapaho Bay boat ramp would be affected in August. None of the other boat ramps would be affected during the summer recreation season. It is reasonable to assume that a 6 percent reduction in surface area and the loss of use of one boat ramp in 1 month of the 5-month recreation season in a water storage reservoir that regularly fluctuates under existing conditions would not substantially affect recreation use or the quality of the recreation experience. As a mitigation measure, the Subdistrict has proposed to modify prepositioning operations to moderate Granby Reservoir water level fluctuations. C-BT water would not be delivered and stored in Chimney Hollow Reservoir in any year when elevations in Granby are anticipated to fall below elevation 8,250 feet. Additional discussion of the effects of modified prepositioning is found in Section 3.5.4 of the FEIS. Additional information also was added to the FEIS to better correlate severe drawdowns during consecutive dry years with reservoir surface area. Dry years and low water levels have occurred in the past and will continue to occur in the future. During successive dry years, the modified prepositioning would minimize impacts to boat ramp accessibility. Also see response to Comment No. 3.

Com-ment	Letter #1110	Response
3	- lakefront and riverfront properties whose value is directly related to reservoir water clarity and water quality; and - numerous summer recreation-oriented and visitor-oriented businesses including private marinas, local motels, restaurants, recreation-oriented retailers, et cetera.	3. The DEIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of diversion for their water. Socioeconomic effects were quantified where data on use and impacts are available. Effects of the Proposed Alternative on recreation experiences and aesthetics is qualitatively described wherever possible, recognizing that these effects vary widely by individual users. As described in the Aquatic Resources section, projected effects to fish habitat are not anticipated to translate to a loss in fishing opportunities or fishing success. Reductions in preferred boating flows and boating days are described in the Recreation and Socioeconomics section of the EIS. This analysis focuses primarily on commercial boating, for which baseline use data exist.
4	In light of these major deficiencies, we ask that Reclamation and the Corps develop a Supplemental Environmental Impact Statement that offers a more thorough and accurate consideration of the environmental and economic effects of WGFP – to inform your decision-making and to allow the public the opportunity to review and comment on the analyses that were inadequate in the current DEIS. In this Supplemental EIS, we request that you:	
5	- Analyze the cumulative impacts of all trans-basin diversion from the Colorado River, including existing impacts from the Colorado-Big Thompson Project and Moffat Collection System.	
6	- More rigorously assess fishery flow needs so that a determination can be made of whether WGFP is consistent with the Colorado-Big Thompson Project primary purpose of preserving the Colorado River's fisheries.	
7	- Conduct a more complete assessment of the socioeconomic impacts of the WGFP, including the impacts described above that were omitted from consideration in the DEIS.	The DEIS states that hydrological changes are unlikely to adversely impact sport fishing under any of the alternatives, and that changes to the visual quality of the Colorado River would not be discernable to most viewers, and would remain similar to existing conditions. It is therefore reasonable to assume that the proposed hydrological changes would not impact private development along the Colorado River. Considering development that has occurred along the shoreline in the last several decades and the lack of sufficient baseline data that would correlate changing water levels to property values, we were unable to quantify the incremental impacts on property values from changes in lake levels for a high elevation reservoir where water levels fluctuate widely such as Granby Reservoir.
8	- Consider alternatives for water supply to the WGFP participants that would not require further significant depletions of the Colorado River.	4. No supplemental EIS is required to address the comments received on the DEIS. The FEIS includes additional information and clarifications on project impacts, as well as more specific mitigation measures.
	As businesspeople, our livelihoods depend on preservation of a viable Colorado River. We urge you to take the steps necessary to protect this vital resource for our environment, communities, and economy. Thank you for the opportunity to comment. Sincerely, Bob Streb, Owner Fly Fishing Outfitters 1060 West Beaver Creek Blvd. Avon, CO 81620 Jonathan Kahn, Owner Confluence Kayaks 1615 Platte Street Denver, CO 80202 Chris Hall, Manager Cutthroat Anglers PO Box 2540 Silverthorne, CO 80498 Scott Linn, Owner Winter Park Optical 45 County Road 804, Suite 150 Fraser, CO 80442 Seth Martin, Assistant General Manager Devil's Thumb Ranch PO Box 750 Tabernash, CO 80478	5. The WGFP FEIS considered past, present, and reasonably foreseeable future actions in the cumulative effects assessment. The C-BT Project is a past action that was included in the baseline hydrology, and was used in the evaluation of cumulative hydrologic impacts and cumulative impacts to other resources. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions that are discussed in Section 2.8 of the DEIS and FEIS. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP.

Com-ment	Letter #1110	Response
		6. Additional information on potential effects on fisheries was added in Section 3.9.2 of the FEIS. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 8, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 7. The socioeconomic evaluation was conducted using the best information available. See response to Comment No. 3. 8. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yields that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Existing absolute Windy Gap water rights represent an existing source of water available to the However, additional infrastructure is necessary to provide reliable deliveries. Thus, the purpose of the WGFP is to fix a broken project, not to develop new sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply, and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

Com-ment	Letter #240	Response
1	WGFP 240 **From:** Paul Prentiss **To:** wtully@gp.usbr.gov; chandler.j.peter@usace.army.mil; **Subject:** Windy Gap Firming Project **Date:** Saturday, December 13, 2008 3:27:34 PM Please be advised of my serious concern concerning impact the Windy Gap Firming Project will have on the Colorado River particularly in the summer months. I don't understand how such a protect can be considered reasonable when meaningful conservation measures are not even in place in the communities that are expected to benefit. I believe that proceeding with this plan, as defined, will degrade the the Colorado River eco-system. Paul Prentiss Front Range Anglers ~ Boulder, CO Fly Fishing Exchange ~ Boulder, CO 303-444-0270 270-394-1115 peprentiss@gmail.com	1. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended, (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict. Additionally, other mitigation measures, as summarized in Section 3.25 and in each resource section of Chapter 3 of the FEIS, will avoid or minimize adverse effects of the proposed project on the Colorado River.

Com-ment	Letter #256	Response
1 2 3	GEO TOURS/Whitewater Raft Trips WGFP 256 December 18, 2008 VIA EMAIL: WTULLY@gp.usbr.gov Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 VIA EMAIL: chandler.j.peter@usace.army.mil Mr. Chandler Peter, P.E. Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 **Re: Windy Gap Firming Project Draft Environmental Impact Statement** Dear Mr. Tully and Mr. Peters, As a rafting outfitter that has operated on the Upper Colorado River for over 27 years and whose business relies upon the beauty and recreational opportunities that the Colorado River System provides. I submit the following comments on the Windy Gap Firming Project (WGFP) Draft Environmental Impact Statement (DEIS). • Water resources and my business as a river outfitter on the Upper Colorado River are inextricably linked. The WGFP impacts the environmental quality of the Colorado River. These impacts directly affect the tourist and recreation industry, creating adverse effects on river outfitters. Despite these consequences very few of these environmental or socioeconomic impacts are measured in the DEIS – and those that are measured are underestimated through use of an inaccurate measure of "existing conditions," an inaccurate measure of the "No Action Alternative," inappropriate modeling techniques, false assumptions, outdated data, lack of quantification and omission of critical considerations and impacts. Environmental and socioeconomic impacts need to be further evaluated and addressed in the DEIS. • Recreation analysis only considers commercial boating and commercial fishing on one reach of the Colorado River. The visual quality analysis excludes consideration of the Colorado River as a scenic asset that attracts and extends the stay of visitors. • The DEIS excludes economic impacts of recreational activities on guides, outfitters and businesses that support the outfitters and guides. *GEO TOURS, 229 Hwy 8, P O Box 483, Morrison, CO 80465-0483* *Local: 303-756-6070, Toll Free: 800-660-7238, FAX 303-756-9532* *E-mail: Bruce@georafting.com Website: www.georafting.com*	1. The FEIS includes an assessment of impacts to a range of resources, including detailed assessment of potential effects to boating in the Colorado River. The Recreation and Socioeconomic sections of the FEIS were revised to better describe potential recreation impacts and the economic effect of changes in available boating flows. The analysis was based on a comparison of future hydrologic conditions for each of the alternative actions and existing hydrologic conditions. The No Action Alternative represents what WGFP Participants would do if Reclamation does not allow the proposed connections to C-BT facilities. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. 2. The recreation analysis focuses on commercial boating and fishing data for the Gore Canyon/Pumphouse reach of the Colorado River because that is the reach from which most of the boating activity in the upper Colorado River occurs and for which there is accurate data available from the BLM. The economic effects on commercial uses are described in the Socioeconomics section. The Visual Quality section discusses potential effects of Colorado River hydrological changes on visual quality (finding that the scenic character would remain similar to existing conditions). Effects of the alternatives on recreation experiences and aesthetics is

Com-ment	Letter #256	Response
	GEO TOURS/Whitewater Raft Trips	qualitatively described wherever possible, recognizing that these effects vary widely by individual user.
4	• In the visual, land use, recreation and socioeconomic impacts, the DEIS provides very few mitigation solutions because it quantifies very few impacts.	3. The Socioeconomic analysis details the potential economic effects of Colorado River flow changes in terms of the loss or gain of visitor days (and the monetary value of those days). Available information was used in the analysis and the methods are described in Section 3.22.2.2 of the FEIS. This section also describes the value of the recreation impact, which was defined as the willingness to pay unit-day, expressed in terms of dollars per visitor day, multiplied by the estimated gain or loss in visitors. Also, because the analysis conservatively assumes a total loss of boating user days when preferred flows are not met, no additional estimates of indirect economic impacts were made. It is unlikely that all boating activities would cease if flows were not in the preferred range, as long as flows were above minimum values. Thus, the analysis provides a reasonable estimation of economic impacts from changes in the amount of preferred boating days, although the estimate does not segregate impacts specifically to outfitters.
5	• The presentation and use of data in average monthly statistics is not helpful as visitors view and use the Upper Colorado River on a daily basis. Fish require adequate water daily, not in averages. Average monthly statistics might mask the more realistic impacts. If the conditions are unfavorable on the day that a visitor is present, that visitor is likely to go elsewhere the next time.	
6	• Prior to diverting west slope water away from the people and environment that need it, the east slope receivers should be required to maximize water conservation. Some municipalities in the arid west have decreased water consumption by as much as 30%. The burden of water scarcity should at least be shared – not borne solely by the people and ecosystems of the West Slope.	
7	• Grand County is preparing a comprehensive scientific study and analysis, the Grand County Stream Management Plan, to identify a preferred flow regimen for streams and rivers in Grand County. This Plan will take into consideration cumulative impacts of past, present and future projects that have effected the Upper Colorado River System. It will view the river system as a whole and it will seek to avoid the worst impacts of further diversions. The end result is a compilation of scientific data identifying stream flow needs that will protect aquatic life and the environment, while meeting the needs of both the East Slope and West Slope water supply needs. The DEIS fails to acknowledge this Plan. If the WGFP is approved, the Plan should be used to define the mitigation needed for the project, and compliance should be monitored.	4. The Recreation resources analysis focuses on the potential effects of the proposed hydrological changes on river and lake recreation. Where possible, these quantitative hydrological changes are related to measurable thresholds that affect recreational access and opportunities (such as preferred flows for boating and access to boat ramps at reservoirs). By their very nature, some recreation activities are widely dispersed, are not quantified, and the quality of recreation experiences vary by individual user. Potential impacts were described quantitatively wherever possible and qualitatively where insufficient information was available based on sound logic and professional experience using the best available information.
8	• A single EIS for both the Moffat Tunnel Expansion Project and the WGFP should be conducted in order to ensure that the cumulative impacts from both projects are evaluated simultaneously and that appropriate mitigation measures are put into place.	The EIS provides a reasonable description of the impacts of the alternatives based on available data and accepted analysis methods. Section 3.25 of the FEIS describes mitigation measures to reduce resource impacts, including modifying prepositioning to maintain higher water levels in Granby Reservoir, reducing nutrient loading into the Three Lakes system, and other measures that will avoid or minimize adverse effects to recreation and fish and wildlife resources as a result of the WGFP.
	Thank you for taking these comments into consideration. I look forward to seeing them addressed in the Final Environmental Impact Statement. Sincerely, Bruce Becker Geo Tours Whitewater Raft Trips	5. A combination of daily and monthly hydrologic data were used for flow-related resource evaluations. Additional information on the use of daily data for resource analyses was included in Section 3.5.2.2 in the FEIS.
	GEO TOURS, 229 Hwy 8, P O Box 483, Morrison, CO 80465-0483 Local: 303-756-6070, Toll Free: 800-660-7238, FAX 303-756-9532 E-mail: Bruce@georafting.com Website: www.georafting.com	6. The WGFP Participants have committed, and will be required, to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans,

Com-ment	Letter #256	Response
		and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. 7. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. After review of the Grand County SMP and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 for Pumphouse. The Recreation section of the FEIS includes these changes. 8. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

Com-ment	Letter #24	Response
1	WGFP 24 **From:** Norman Carpenter [ncarpenter@royalresorts.com] **Sent:** Tuesday, September 30, 2008 4:25 PM **To:** wtully@gp.usbr.gov **Cc:** grndcty1@co.grand.co.us; japrecourt@aol.com **Subject:** Windy Gap Draft EIS Comment Dear Mr. Tully, Twenty years ago I realized a lifelong dream and purchased an historical working cattle ranch on the Colorado River near Parshall. This is my second home. I visit and live there a week or more every month of the year, and in the process, give a great deal of support to the local economy. In the last dozen years I have spent more than a million dollars preserving and protecting the ranchland and its water rights, wetlands, riparian areas, the river itself, and the fishery. I have watched with dismay as water levels decline and fish habitat is ruined, so that highway overpasses and lawns on the other side of the continental divide can be green. This is a seriously misplaced priority for our precious water resource. I AM ADAMANTLY OPPOSED TO ANY ACTION WHICH WILL REDUCE FLOWS IN THE UPPER COLORADO RIVER, AND INSIST THAT HISTORICAL NATURAL FLOWS BE RESTORED. Please do what you can to right this wrong. Sincerely, Norman A. Carpenter, owner Gold Medal Ranch LLC --- This e-mail message is for the sole use of the intended recipient and may contain confidential information. Any unauthorized review, use, disclosure or distribution of this message is prohibited. If you are not the intended recipient of this message please respond to the sender by reply e-mail and destroy all copies of the original message. This e-mail and any attachments have been scanned for viruses prior to leaving our network. We are not liable for indirect or consequential damages from alteration of these contents by a third party or by the result of any virus. Este mensaje es para el uso unico y exclusivo del destinatario y contiene informacion confidencial. Queda estrictamente prohibida cualquier reconsideracion, uso revelacion o distribucion de este mensaje. Si usted no es el destinatario, por favor informe inmediatamente al remitente via email y destruya el mensaje original asi como las copias del mismo. Este mensaje y los archivos adjuntos han sido escaneados contra virus en nuestra red. Sin embargo, no seremos responsables por daños o alteraciones en este contexto, a terceras personas, o por el resultado de cualquier virus.	1. Thank you for expressing your concerns about the proposed project. Mitigation measures to avoid and minimize project impacts are summarized in Section 3.25 of the FEIS and discussed in more detail for each of the resources.

Com-ment	Letter #359	Response
1	WGFP 359 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Sharon Brenner MS. BRENNER: I'm Sharon Brenner. I'm with the Granby Chamber of Commerce. That's B-r-e-n-n-e-r. I think when I was looking at this study -- and I haven't read through the whole thing, but from looking at the study, I don't see where they really looked at the economic impacts of the community. Granby has long been -- Granby and Grand County have long been a tourism area. And if you drop the flows in the river, we ruin the fly fishing. If you drop the level in the lakes, you lose the marinas and you lose the fishing in the lakes. People -- when we had our drought, we had -- people were not coming up. And, as a motel owner when I was here, when I owned the motel, we saw less people coming up to go fishing because there was no water in the lake. I think it's something that needs to be checked. I think it's something that needs to be studied. I haven't had anybody come to me and ask me, what's going on? I haven't had my -- the members of the chamber have all said that they have not heard from anybody asking questions about what happened to them economically when there was a drought. So, with the impact of the lake and the impact on the rivers, I think there is a serious impact on the economy of this whole county. And I really believe that that needs to be studied more before anything is approved. Thank you.	1. Economic and recreation effects were quantified where data on use and impacts are available. Quantitative impacts to boating in the Colorado River are included in the Socioeconomic section of the FEIS. Hydrological changes are unlikely to adversely impact sport fishing under any alternative based on both the timing of flow changes and the results of the aquatic resources analysis, which determined that the projected effects to fish habitat would not result in a loss of angling opportunities or success. As reported in the Recreation section (Section 3.19), effects of the proposed alternatives on land-based recreation activities, aesthetics, and tourism in Grand County are not readily measured and are likely to be small. It is reasonable to assume that a 6 to 7 percent average reduction in Granby Reservoir surface area, in a water storage reservoir that regularly fluctuates under existing conditions, would not noticeably affect recreation use or the quality of the recreation experience, or have measurable socioeconomic impacts. However, to reduce potential impacts as described in Section 3.5.4, the Subdistrict would modify prepositioning operations under the Proposed Action to moderate Granby Reservoir water level fluctuations, which would maintain higher average and dry year water levels in Granby Reservoir compared to the original prepositioning plan. Additional mitigation measures to address Colorado River temperature, Three Lakes nutrient loading, flushing flows, and other impacts are summarized in Section 3.25 of the FEIS.

Com-ment	Letter #408	Response
1 2	WGFP 408 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 John Brooks MR. BROOKS: Good evening. My name is John Brooks, and I represent GGLSA, the Greater Grand Lake Shoreline Association. We're just under a hundred members and have water quality and clarity of Grand Lake as our number one mission. We have several members that worked for the last several decades on water quality issues in Grand Lake. Before I give my individual comments on the EIS, let me set a little background. In 1937, Senate Document 80 created Colorado Big Thompson project. It's been called the Bible of the project. There was a promise in that to Grand Lake, Grand County, and the people of Colorado that the project would be operated, quote, to preserve fishing, recreation, and the scenic attraction of Grand Lake, end of quote. Before the project started pumping, clarity in Grand Lake was measured at over 9 meters, about 30 feet. Let's jump ahead to 2006. Because of continued degradation in clarity and to a little under 2 meters, northern -- the City of Grand Lake, Three Lakes Watershed Association, and ourself, jointly funded a study to identify a less harmful means of moving water to the Adams tunnel. Less harmful than just using Grand Lake as a big ditch. The contractor was McKlackering (phonetic) out of Denver. They identified several alternatives, the preferred one being a tunnel bypassing Shadow Mountain and Grand Lake. Let's move ahead again to June 2008. With water quality and clarity of Grand Lake still a major concern, the Northwest Council of Governments and Grand County proposed to the State of Colorado that a 4-meter standard be established for Grand Lake. In fact, in a pretty historic setting, the Colorado Water Quality Control Commission issued a narrative water clarity standard, the first one that's ever been issued in the State of Colorado. That standard was the highest level of clarity obtainable with a goal of reaching a clarity of 4 meters by the year 2014. With that as background, I have five specific comments on the EIS. Number one: According to the EIS, the current proposed action will see a 4 percent degradation in the current level in Grand Lake. We think the EIS should address how it plans to meet not only the intent of Senate Document 80 but the specific goal as set by the Colorado Water Quality Control Commission. Number two: The study uses annual averages. This is a little like the guy that drowned in a lake that was an average of an inch deep. The averages don't mean much when your real area of concern is July through September when the algae bloom and inflow from Shadow is the biggest concern. We think the model needs to be rerun. In fact, the data is all	1. Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping so that the WGFP would not exacerbate the current algae and clarity problem in the Three Lakes system. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River. With respect to the requirements of Senate Document 80, please refer to the additional text added at the beginning of Section 1.10.2 of the FEIS. 2. The peak chlorophyll *a* concentrations and the minimum Secchi-disk depths are reported by year in the FEIS and encompass the period of prime concern in the summer. The analysis of water quality impacts for the Three Lakes was conducted using daily data. The DEIS presented monthly average data and the range of daily values. Figures displaying daily values for total phosphorus, total nitrogen, chlorophyll *a* concentrations, Secchi-disk depths, and dissolved oxygen were added to Section 3.8.2.4 of the FEIS.

Com-ment	Letter #408	Response
2	there and easily done, in using that to see what the degradation would actually be during the time of prime concern. Number three: The EIS strangely enough has a concept	
3	in this that increased flow through Grand Lake would somehow flush out the bad stuff and bring in the good stuff. Every study we've seen shows just the opposite. In fact, this year, Reclamation shut down the tunnel for a two-week period. During that time, clarity improved at a level of about 2 feet per week. As soon as the tunnel was turned back on, it degraded at about the same rate until it reached its original level of clarity. We think that unless specific science can be quoted, that that should be taken out of the EIS. Number four: There's	3. In general, high flushing rates can improve water quality. Flushing can achieve improved quality in eutrophic lakes by increasing the water exchange rate (Cooke et al. 2005). According to these authors, "by increasing the water input the flushing rate is increased, which in turn increases the loss rate of plankton algae from the lake." The discussion in the EIS for Grand Lake is focused on predicted nitrogen concentrations and describe the impacts of both increased loading and increased flushing.
4	a big Delta being formed at the entrance into Grand Lake, where Shadow Mountain pumps into Grand Lake. The addition of 30,000 acre-feet of additional material coming through there will just add to that. We think that needs to be addressed. Fifth and most importantly, we think the tunnel study of	4. Discussion of the delta located in Grand Lake at the east end of the channel was included in the FEIS. It is very difficult to quantitatively describe the impact of additional Farr pumping on the delta. Given the existing problems with sediment in Shadow Mountain Reservoir, it is possible that the delta may increase with increasing Farr pumping; by how much, is unknown and difficult to quantify.
5	McKlackering needs to be included. At a cost of a little over 2 percent of total project costs, this would ensure the clarity of Grand Lake not only for our generation but for generations to come. Thank you.	5. Considering modifications in C-BT Project facilities, such as rerouting C-BT Project water around Grand Lake, are beyond the scope of the WGFP EIS. Modifications to C-BT Project facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.

Com-ment	Letter #58	Response

Windy Gap Draft EIS Comments

Greater Grand Lake Shoreline Association (GGLSA) comments on the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) in compliance with the National Environmental Policy Act

1. Introduction

GGLSA represents almost 100 members who have the vital interests of water quality in Grand Lake, Colorado's largest natural lake, as their primary mission. Members of GGLSA have been actively involved in Grand Lake water quality issues over the past several decades.

2. Background

Senate Document 80, (1937) the enabling legislation for the Colorado – Big Thompson Project (C-BT) and the "bible" of the C-BT,has as its second operational requirement "To preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and the Rocky Mountain National Park." "In order to accomplish these purposes, the project should be operated by an unprejudiced agency in a fair and efficient manner, equitable to all parties having interests therein," In 1941, prior to the start of C-BT pumping operations but after the SD 80 commitment to preservation, world-renowned lake scientist Robert Pennak measured Grand Lake clarity at 9 Meters (29.7ft..) Sechi dish measurements since the start-up of C-BT pumping have never reproduced that level of clarity.

In 2006, due to concerns over degrading quality of water in Grand Lake, GGLSA, Three Lakes Watershed Association (TLWA), Grand County and NCWCD jointly funded a study targeted at finding a viable, less harmful means of moving water from the Western Slope to the Eastern Slope.. It was determined that due to its shallow structure, Shadow Mountain Reservoir would always be problematic and that either a pipeline through, or a tunnel around, should be constructed to bypass both Shadow Mountain Reservoir and Grand Lake. The preferred alternative was a 3 mile tunnel that would alleviate the influx of nutrients and sediment into Shadow

Com-ment	Letter #58	Response
1	Mountain Reservoir and Grand Lake by moving water from the south side of Shadow Mountain Reservoir directly to the Adams tunnel. The commenter's concerns regarding water quality which are shared by several municipal and county governments and sanitation districts located in the Upper Colorado River and North Platte River basin will be further heightened by continued degradation in water quality in Grand Lake. Based on these concerns the Northwest Council of Governments (NWCCOG) and Grand County, with the support of GGLSA and TLWA proposed a site specific Secchi- Disk depth standard for Grand Lake of 4 meters [13.12 ft.] (CWQCC, 2008). In June 2008 The Colorado Water Quality Control Commission established a narrative clarity standard ("The highest level of clarity attainable, consistent with the exercise of established water rights and the protection of aquatic life") for Grand Lake effective December 31, 2008. The CWQCC also established a numeric clarity standard of 4 meter Secchi-disk depth for the months of July through September effective January 1, 2014. This unprecedented action is the first and only time a clarity standard has been established for a lake in the state of Colorado. As a result Reclamation and NCWCD committed to CB-T trial operations by "altering pumping from Granby Reservoir to Grand Lake during critical periods to determine impacts on Grand Lake clarity". 3. Comments According to the DEIS the proposed action would degrade Grand Lakes existing annual average Secchi-Disk Depth of 2.6 meters by almost 4% --A move in the wrong direction. An additional concern is the use of annual averages when addressing Grand Lake clarity –As is evident from the decision of the CWQCC, the period of interest is from June – September – the use of annual averages severely understates the effect of increased water flows during these critical months. On page 3-75 the EIS notes that Grand Lake clarity has varied between 1.8 meters and 5.6 meters. The 5.6 meter Secchi depth measurement is the second best measurement EVER documented on Grand Lake (second only to Pennak's 9 meter measurement in 1941). That data was taken in November of 2006. C-BT pumping had ceased three weeks earlier to facilitate the draw-down of Shadow Mountain reservoir for weed mitigation. Only East and North Inlet streams flows were providing water to	1. The DEIS analysis shows a decrease of almost 4% to the annual average Secchi-disk depth for Grand Lake for the alternatives compared with existing conditions. Annual averages are listed in Table 3-54 of the DEIS (Table 3-75 FEIS). Figure 3-81 was added to the FEIS to show the predicted daily fluctuations in Secchi-disk depth for Grand Lake and similar figures were added for Shadow Mountain Reservoir and Granby Reservoir. The statement in the DEIS of "Secchi-disk depths since 2000 have ranged from 1.8 to 5.6 meters" should actually read "Secchi-disk depths since 2000 have ranged from 1.8 to 5.7 meters." The measurement taken in November 2006 was not the second best measurement ever documented. A reading taken by the USGS in November 2000 was higher. Note that operations of the Granby Pump Canal and Adams Tunnel in November 2000 were similar to that of other years.

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	Grand Lake during that time period, resulting in a good approximation to the natural state of the Lake.	
2	As agreed, Reclamation and NCWCD modified operations to stop pumping water into Grand Lake for the first 3 weeks of August 2008. Due to lack of moisture on the Front Range and extremely high temperatures, the pumping cessation was shortened to two weeks. Even during the shortened no-pumping period clarity improved by 50%, from just under 8 feet to just under 12 feet – close to the 4 meter goal set by the CWQCC. Clarity improved at a rate of 2 feet per week until pumping resumed. After pumping resumed clarity degraded to nearly its original level –at the rate of about 2 feet per week. (See attachment – revised letter from GGLSA to Reclamation dated 10/22/08) The increased flow of 30,000 Acre Feet of water from the Firming Project will require 27.5 days of additional pumping at 550 cubic feet/second (24/7) which will then severely limit the ability of Reclamation and NCWCD to improve the clarity of Grand Lake using operational modifications to cease pumping during the most critical periods.	2. Reclamation is continuing to evaluate operational changes in the water delivery from Granby Reservoir through Shadow Mountain Reservoir and Grand Lake. Any changes in operations or other measures to improve Grand Lake water quality are occurring independent of the WGFP. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, would reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP would not exacerbate the algae and clarity problem in Shadow Mountain Reservoir and Grand Lake.
3	Even though NCWCD helped fund and had the results from the 2006 McLaughlin Rincon scoping study which recommended a tunnel alternative to restore Grand Lake water quality, it was not considered or included in the DEIS as potential mitigation.	3. Modifications in C-BT facilities, such as rerouting C-BT water around Grand Lake, are beyond the scope of the proposed WGFP. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.
4	The DEIS comments that the higher "flushing rate" resulting from the increased flow "can serve to improve water quality". Every study we have seen shows exactly the opposite –increased flow is directly related to lower water quality. The mission of the Bureau of Reclamation is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American Public". *Until recently, their* focus seems to have been on the economics at the sacrifice of the environment..	4. In general, high flushing rates can improve water quality. Flushing can achieve improved quality in eutrophic lakes by increasing the water exchange rate (Cooke et al. 2005). According to these authors, "by increasing the water input, the flushing rate is increased, which in turn increases the loss rate of plankton algae from the lake."
	4. Recommendations	
5	A sustainable operational plan to meet the 4 meter clarity goal for Grand Lake should be submitted to CDPHE (Colorado Dept. of Public Health & Environment) including the number of days in June, July, August, and	5. See response to Comment No. 2.

Com-ment	Letter #58	Response
	September when no pumping would occur prior to the submittal of the EIS for the Windy Gap project.	6. See response to Comment No. 4.
6	The DEIS should then include information on how the 4 meter clarity goal for Grand Lake will be met when the flow is increased by 30,000 acre feet of water from the firming project which would require another 27.5 days of plumping to accomplish.	7. The model was run on a daily basis. In addition to reporting the annual average clarity, the minimum clarity by year is reported in the DEIS. Graphs of daily results were added to the FEIS. See response to Comment No. 1.
7	The Model used in the DEIS for Grand Lake clarity should be run on a weekly basis for the critical months of June – September rather than just addressing annual averages.	8. See response to Comment No. 4.
8	If no scientific basis can be cited – the concept that increased flow can lead to "flushing" and "improved water quality", should be removed from the DEIS.	9. The delta located in Grand Lake at the east end of the channel is included in the FEIS. It is very difficult to quantitatively describe the impact of additional Farr pumping on the delta. Given the existing problems with sediment in Shadow Mountain Reservoir, it is reasonable to think that the delta may increase with increasing Farr pumping. By how much, is difficult to quantify.
9	A discussion and mitigation plan should be included regarding the significant delta being formed at the channel entrance to Grand Lake and the impact on that delta of an additional 30,000 acre feet of water annually.	
10	The use of the McLaughlin Rincon tunnel alternative should be included in the mitigation discussion. At a cost of a little over 2 % of the total project –it is clearly a less harmful means of moving water from the Western slope to the Eastern slope while insuring the clarity of Grand Lake as well as Shadow Mountain Reservoir for future generations.	10. Modifications in C-BT facilities are beyond the scope of the proposed WGFP and beyond the scope of the EIS. Reclamation will continue to operate the C-BT Project in accordance with the requirements of Senate Document 80.
11	The Moffatt tunnel expansion EIS should be considered jointly with the Windy Gap EIS since they both draw from the same basin and the cumulative effects of both projects have not been considered.	11. The FEIS fully considers the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP.
12	The water users requesting the additional 33,000 ac/ft. of water should demonstrate adequate conservation programs or rate structures which would be inductive to conservation of finite resources.	12. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation will require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict .
	Respectfully,  Stephen E. Paul 22 October, 2008 President, Greater Grand Lake Shoreline Association	

Com-ment	Letter #58	Response

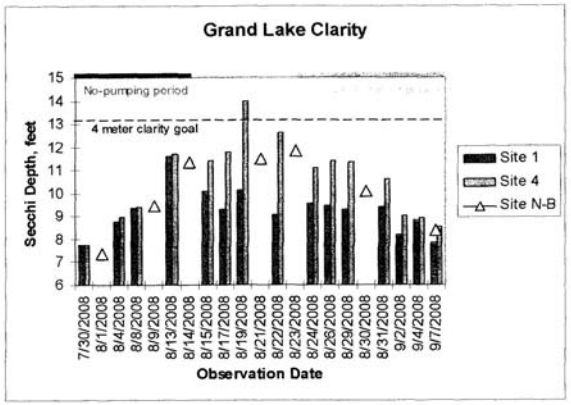
Greater Grand Lake Shoreline Association
Box 1096, Grand Lake, Colorado 80447
www.gglsa.org

October 22, 2008

Will Tully
Jaci Gould
Mike Collins, Area Manager
Bureau of Reclamation
Eastern Colorado Area Office
11056 W. County Road 18E
Loveland, CO 80537

Dear Will, Jaci, and Mike,

This letter is to follow up on my September 8, 2008 communication in which I summarized initial clarity data collected during the 2008 pumping trials. You'll recall the data reported in that earlier letter summarizing three sites in Grand Lake:



Data for all ten sites sampled on Grand Lake is now available through GCWIN, and I have summarized the results for those ten sites below. For simplicity I have split the data into the two periods, Trial Start and Trial Finish. The former includes the no-pumping period and the ramp-up to full pumping, while the latter is that period after which full pumping was resumed. The two graphs below summarize the ten sites measured on Grand Lake, with a least-squares line fitted to each:

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Greater Grand Lake Shoreline Association

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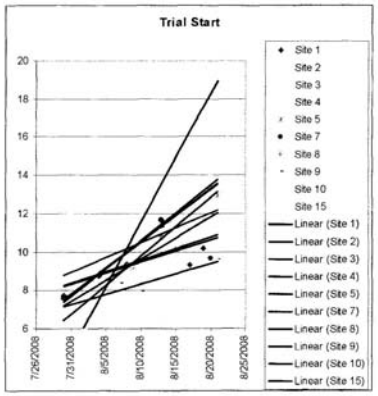

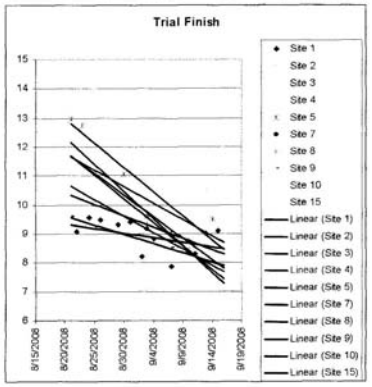

As was the case for the three sites summarized earlier, every location sampled in Grand Lake showed the same trend: Clarity improving markedly when pumping was ceased, and degrading markedly when pumping resumed.

Shadow Mountain reservoir was also sampled at three sites, and is summarized next:

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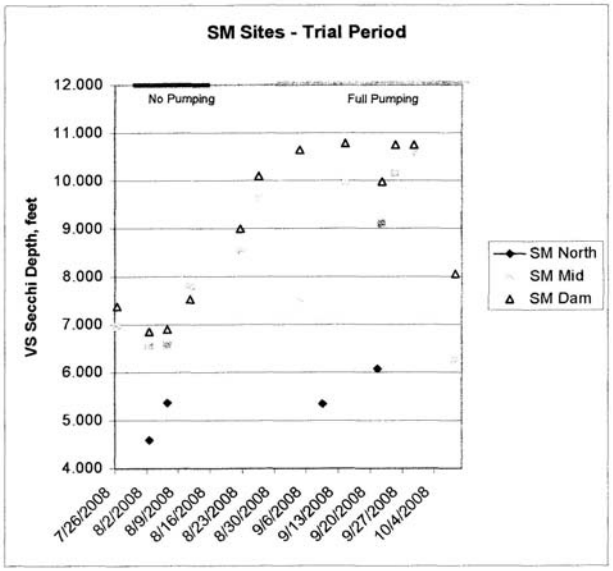

The clarity of Shadow Mountain reservoir, like Grand Lake, improved markedly during the no-pumping period at two of the three sites and eventually declined after resumption of pumping. (Data from the third site (SM North) is currently in question due to the shallow depth at that location, but I have shown all the data here to be inclusive).

Note that the clarity data above does not support the "stagnation" hypothesis, namely that the reservoir will grow more algae and become less clear if "refreshing flows" are halted. Instead the data supports an alternative hypothesis, that when the influx of nutrients from pumping is ceased, the reservoir will clear up. That it did.

One more site was measured that is worthy of comment, and that is Columbine Lake. Columbine Lake is located just a few miles from Grand Lake and serves as an interesting control reference. It is not part of the C-BT but is close enough to be influenced by local weather patterns. Thus, if any of the variations in either Grand Lake or Shadow Mountain reservoir were caused by temperature or other environmental effects not

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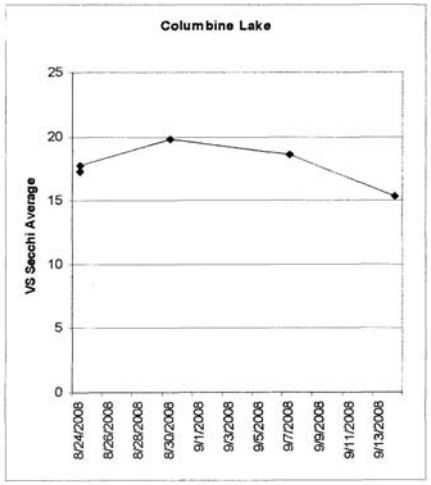
explainable by C-BT pumping, we would expect to see those same trends show up in the Columbine Lake data:



All four measurements taken on Columbine Lake during the trial period showed Secchi depths in excess of 15 feet. We should expect to achieve similar results for Grand Lake next year, assuming that the no-pumping period can be extended through August and September, as was initially proposed for 2008 by the Bureau and NCWCD.

Thanks again for your continued support.

Best Regards,

Steve Paul
President
GGLSA

K. John Stahl
Board Member
GGLSA

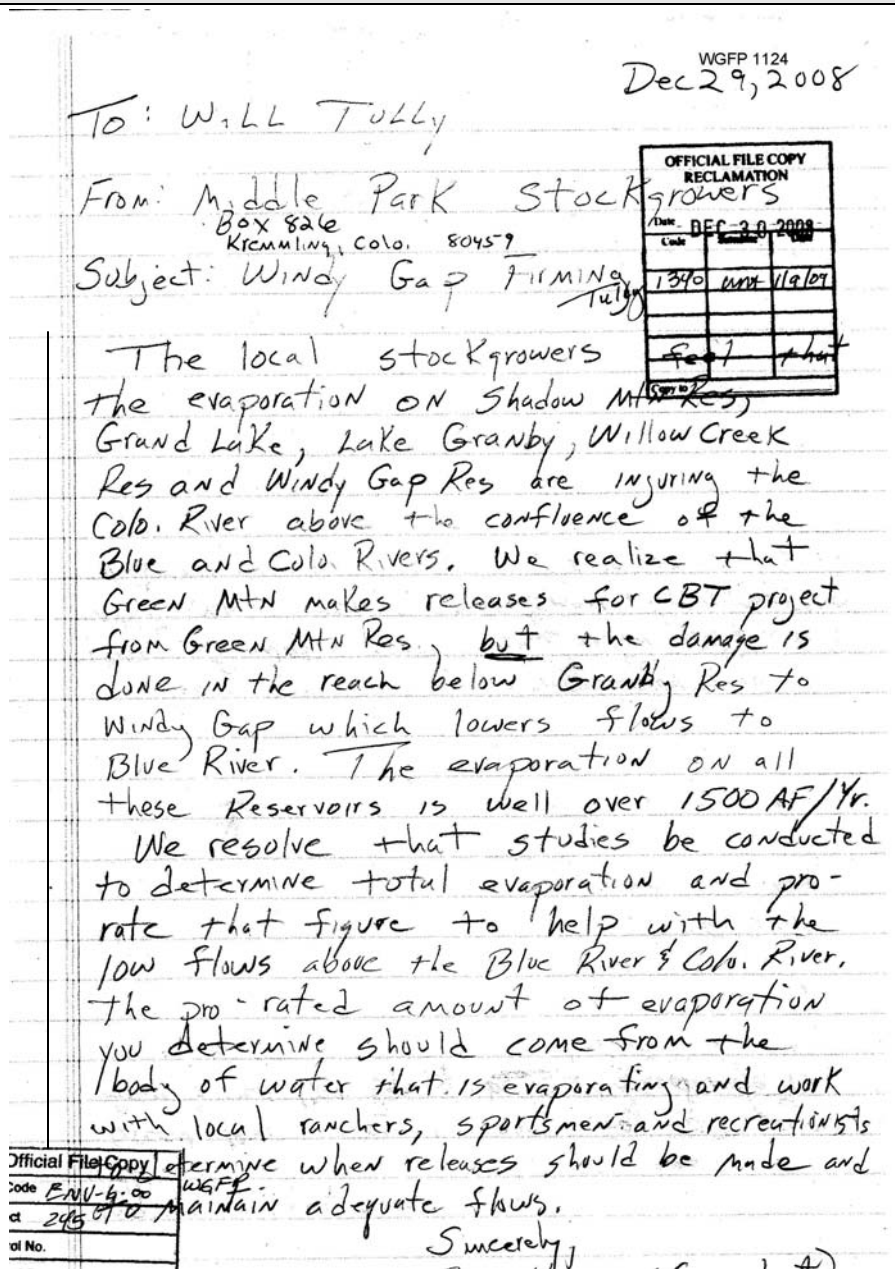
Com-ment	Letter #58	Response
	Greater Grand Lake Shoreline Association **Box 1096, Grand Lake, Colorado 80447** www.gglsa.org CC: Dr. G. Chris Holgren, Bureau of Reclamation Mike Applegate, President, Northern Colorado Water Conservancy District Don Carlson, Assistant General Manager, Operations, NCWCD Jeff Drager, NCWCD Esther Vincent, NCWCD Sarah Johnson, Standards Unit Manager, CDPHE Paul Frohardt, Commission Administrator, Water Quality Control Commission Luline Underbrink-Curran, Grand County Manager Katherine Morris, Grand County Lane Wyatt, Northwest Council of Governments Elwin Crabtree, Three Lakes Watershed Association Judy Burke, Town of Grand Lake	

Com-ment	Letter #388	Response
	WGFP 388 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Steve Paul MR. PAUL: My name is Steve Paul. It's P-a-u-l, and I'm president of the Greater Grand Lake Shoreline Association. We're represented by 100 members who live around Grand Lake. As you consider this environmental impact statement, which is going to add additional quantity to the CBT project, it seems appropriate to me to go back to the original crowning document, which was Senate Document 80, which was passed by the United States Senate in 1937. In that legislation, they outline five operating principles for the CBT, and the second one of those was to preserve the fishing and recreational facilities and scenic attractions at Grand Lake, Rocky Mountain National Park, and the Colorado River. Let me repeat that. Preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, Rocky Mountain National Park, and the Colorado River. As John mentioned, in 1941 Robert Penick (ph), the famed lake scientist, measured the lake depth, clarity depth, at nine meters, which is right around 30 feet. In 2007, last summer, a year ago, it went down to one-and-a-half because of the algae growth. That's not preservation; that's degradation. In 2006, due to the decreasing clarity that everybody was observing, the Greater Grand Lake Shoreline Association, Three Lakes Watershed, the Northern Colorado Water Conservancy District -- and thank you to them for contributing -- as well as Grand County contributed to a study, the Boston Marine Con Study (ph). And their goal, their task, was to find less harmful means of moving water from the West Slope to the East Slope. And they came up with a couple of things. First of all, pumping water backwards through Shadow Mountain Reservoir is always going to be problematic because of the shallow depth of Shadow Mountain Reservoir. They proposed two alternatives. One was a pipeline; the other was a tunnel, both of which would bypass both Shadow Mountain and Grand Lake, thus returning it to the natural flow. I'm losing my stance here. And based on these concerns, the Northwest	

Com-ment	Letter #388	Response
1	Council of Government and Grand County, along with the support of Greater Grand Lake Shoreline and the Three Lakes Watershed Association, applied for a site-specific clarity stand (ph) for Grand Lake. It's the first time it's ever been done. On June 10th of this year, a bunch of us went over to Grand Junction before the Water Quality Control Commission. Along with the water rights that are being exercised by the Front Range users, there are also responsibilities, and these responsibilities have been abrogated for over 50 years. They came up with two things. One, first of all, is a narrative standing, which I will read to you: "To the highest level of clarity attainable, consistent with the exercise of established water rights and the protection of aquatic life." And the second thing was a hard four-meter standard in 2014. So this basically means: Do the best you can between now and 2014 -- 30 seconds. Oh, goodness, I'm not finished yet. Okay. And then a hard standard in 2014.	1. Thank you for your comment.
2	I'll go to my recommendations here. I think sometimes in day-to-day life, things get lost in the shuffle here. And I would like to read to you the mission of the Bureau. "The mission of the Bureau of Reclamation is to manage, develop and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." Well, last time I looked, Grand County residents are still part of the American public. Thank you.	2. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

Com-ment	Letter #1094	Response
1 2 3 4	WGFP 1094 December 5, 2008 McElroy Ranch P.O. Box 215 Kremmling, Colorado 0459 Bureau of Reclamation 11056 W. County Rd. 18E Loveland, Colorado 80537 Attn. Will Tully Official File Copy File Code ENV-6.00 WGFP 245 OFFICIAL FILE COPY RECLAMATION DEC 29 2008 Date Code / Surname / Date 0346 / [illegible] / 12/9/08 Copy to Subject: Windy Gap Draft E.I.S. comments The McElroy ranch, encompassing a two mile corridor of the Colorado River near Kremmling, has been in active production by the same family (five generations) for over one hundred years. When Grandpa Henry first came on the scene, the Colorado River was irrigating the entire ranch every spring as the snow melted and the resulting high water, backing up at the mouth of Gore Canyon, inundated the meadows. Now,one hundred years later, there is barely enough flow in that once gorgeous river for us "survivors" to satisfy our legal water rights, not to mention trying to figure out a way to get our water out of that measly dribble and up onto the meadows. This change in the river from "The Grand River" to the "measly dribble"has already caused enormous changes in the ecology along the river corridor, resulting in the disappearance of the native plants and the invasion of all sorts of noxious weeds and trees, Canadian thistle and tamerisk to name a couple. And now, incredibly, there are plans in the making to devastate the land and the river even further by diverting -- figuratively speaking (or maybe literally) --- the last drop of water that is left in the Colorado River. Because this action removes the water from the entire Western Basin, it will have adverse effects all the way to Mexico. Our ranching future on the McElroy Ranch will be determined by how you respond to us about the impact of the following issues. Please send a reply to the above address. 1) What remediation is planned to control the slime moss that has already become a devastating menace to the fish and to the intakes of our irrigation pumps? 2) What is the plan to maintain the few wetlands that are left in the river bottom so that the birds and the beasts that depend on them for survival don't go away with the water? 3) Is there money and a plan in place to control the noxious plants that will result from even lower flows and to re-vegetate the river bottom lands with vegetation that will be a benefit for not only agriculture, but wildlife, recreation,hunting, fishing, and pure esthetic beauty? 4) The River, because of present low flows, is already struggling to clean itself of the ever increasing discharges into it from such things as storm drains, sewer systems,	1. The growth of "slime moss" is controlled by a number of interacting factors including temperature, water velocity, nutrient concentrations, shading, flushing flows, and grazing by herbivores. Some of these factors would change in the direction of potentially providing conditions for more growth with the WGFP. Mitigation efforts have been identified to help reduce nutrient concentrations and increase flows at critical times. See response to Comment No. 4. 2. None of the WGFP alternatives are anticipated to impact wetlands or riparian areas on the West Slope in a measurable way. No new facilities or infrastructure would be built on the West Slope. Projected changes in Colorado River streamflow are not estimated to impact stream channel morphology or conditions needed for riparian/wetland vegetation. Projected changes in stream stage are not anticipated to have a measurable effect on alluvial ground water levels or the distribution and composition of wetland and riparian vegetation. Because no substantial change to wetland and riparian habitat is anticipated, no adverse impacts to birds and wildlife are expected.

Com-ment	Letter #1094	Response
4 5	and fertilizers and pesticides from lawns and meadows. How will you manage an even lower water flow to "fix" this problem? 5) Is there a plan in place to guarantee in writing that our present irrigation pumping system will remain viable and useable? The McElroy family has been witness to this once-mighty River deteriorating to a measly dribble as it winds its way through Middle Park. If even more west-flowing water is diverted to the eastern slope, and the impacts of these diversions are not adequately addressed, future generations will be left with a slimy drainage canal to enjoy, instead of the "treasure of the West" the Colorado River once was. John H. Mc Elroy Mary K. McElroy Christina M. McElroy Sammons David Sammons Dillan Christine Sammons Cole David Sammons	3. While noxious weeds are a concern for many areas in Colorado, including the Colorado River basin, there is currently no plan to implement weed control on the West Slope as a result of the WGFP. Weed control would be a component of the project where ground disturbances occur. 4. Section 3.8.4 of the FEIS includes a detailed discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River. 5. The Subdistrict would continue to comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In addition, the WGFP would comply with Colorado River bypass flow requirements established by the *Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project* (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir, 135 cfs below the Williams Fork, or 150 cfs below Troublesome Creek. The Azure Agreement was signed by 30 ranchers affected by the WG Project. The Windy Gap Project cannot divert if the agreed minimum flows are not met, even if Windy Gap water rights are in priority. Colorado River flows may fall below the minimum streamflow volumes when the WGFP is not pumping, particularly in the late summer. The Subdistrict has no control over Colorado River flow when the Windy Gap Project is not pumping. The EIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of diversion for their water. Per the Azure Agreement, the Subdistrict funded $500,000 in improvements for ranches downstream from the Windy Gap Reservoir to maintain their diversion structures on the Colorado River. The original Windy Gap Project anticipated diversions greater than those evaluated in the WGFP EIS. The Azure Agreement was developed to mitigate and address all objections to the Windy Gap Project.

Comment	Letter #1124	Response
1		1. Diversions to storage are made in accordance with water rights decrees. Evaporative losses after water is placed in storage is a loss to the project owner, not downstream users. Evaporative losses incurred by the C-BT Project as a whole would decrease under the WGFP alternatives because less Windy Gap water would be stored in Granby Reservoir. Under the Proposed Action, C-BT water stored in Chimney Hollow would incur a higher evaporative loss on average than if the water was stored in Granby Reservoir; however, the overall loss to the C-BT Project due to evaporation would be less. Under existing conditions, all Windy Gap water is stored in Granby Reservoir; therefore, Granby Reservoir contents and the corresponding surface area are greater than under the Proposed Action. This results in additional evaporative losses, which are charged to the Windy Gap Project. The C-BT Project loses no water as a result of Windy Gap water in the C-BT Project system. Green Mountain Reservoir's function with respect to the C-BT Project is to provide replacement water to downstream users that would otherwise be impacted by C-BT operations. The Replacement Pool of 52,000 acre-feet is reserved to meet the obligation of replacing out-of-priority depletions associated with the C-BT Project. There is no injury to water rights on the Colorado River above the confluence of the Blue River. In accordance with Stipulation j of Senate Document 80, to assure that the C-BT Project does not adversely affect irrigators in the vicinity of Kremmling, they are treated as if they have water rights with priorities earlier than the C-BT Project

Com-ment	Letter #237	Response
1	WGFP 237 **From:** Mo Henry"s Trout Shop **To:** wtully@gp.usbr.gov; **Subject:** Water Conservation **Date:** Wednesday, December 10, 2008 10:31:05 AM Mr. Tully, It seems you are faced with quite a decision. One that should come quite easy based on the arguments. You have a growing population on the front range in need of water but lacks the critical water conservation regulations necessary to warrant further request. The 30 million people that access the water flowing through the Colorado river for municipal and agricultural needs will soon be faced with their greatest natural resource disaster to date. (http://www.msnbc.msn.com/id/28068692/) When that debate takes place, I would want to be the one to say that I have exercised every avenue to conserve the water currently recieved. The greatest water conservation infrastructure to date needs to be put in place and Colorado might as well be the first This infrastructure needs to include Xeriscaping requirement(not voluntary), Gray water reuse, require removal of Kentucky blue grass(it isn't green), and other non-native vegetation. You are in a position to have incredible influence on the future of water conservation. Require Northern Colorado Water Conservancy to demonstrate their responsible conservation measures before adding water to the problem. As a race, we will be severely tested by our environmental mistakes in the next 20 years. We need responsible conservation policy now to cushion the severity of these disasters. Take action now by limiting the current water abuse in our state and set an example for others to follow. Someday we will wait to long to pay for our mistakes. Don't let this be one of them. Thank you, Henry Kirwan, resident of Grand County and member of the human race willing to coexist! Mo Henry's Trout Shop 76837 US HWY 40 Box 1351 Fraser, Co 80442 (970)726-9754 mohenrys.com <")))))><(	1. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Com-ment	Letter #375	Response
1	WGFP 375 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Henry Kirwan MR. KIRWAN: Name is Henry Kirwan. Last name, K-i-r-w-a-n. I'm co-owner of Mo Henry's Trout Shop with my brother, who just spoke very well, for once. I would just like to cover a few topics. We have covered a great many things tonight that are very important, and it's amazing that we've had such turnout in this valley. First of all, I would like to say that the 60-day extension is very viable, especially when we have at least a thousand clients that are very involved in the valley and just recently found out about the topic that they would like to be more involved in and have a say in, not only in asking us where to send their written comments, but also what politicians they need to contact to solve this problem and maybe see different ways. Other aspects that we're looking at, of course, is conservation. You know, in this valley, right now we're looking at invasive species, such as New Zealand Mud Snails, the Quagga Mussels, the Didymo issue. I would say probably the most important invasive species that we have to deal with right now are the grasses in the desert on the Front Range that you are spending 50 percent of our water watering. We need to solve that issue, and conservation is a big portion of that. You know, many of your people representing Greeley and Fort Lupton and other places, I understand that there is issues for water, and we need to address that. But right now, you are looking at short term. What we need to look at is a 30, 40, 50-year solution. Our water is going to -- your taking our water from us is going to destroy our ecosystem, destroy our economy. Directly, my brother and I's fly shop, as well as the other fly shop, and some of the rafting companies, they go down immediately. And then I spend all day talking to businesses that we send all of our clients to. Sharky's Restaurant, I asked them, I said, "Do you realize what your business in the summer, where it comes from?" And they said, "Well, yeah, from the fisherman, from rafting companies." They didn't realize that this issue could encompass them.	1. The WGFP Participants have committed, and will be required, to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB) approved plans and other participants will be required to have a CWCB approved plan prior to delivery of WGFP water. Reclamation will require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

Com-ment	Letter #375	Response
2	I'm talking to the gas stations. Fewer people are going to buy gas. Fewer people are going to be in the valley attending their gas station, their convenience stores, their restaurants, at night. This is a major issue that entails much more than just fishing, much more than just our ecosystem. I would rather stand up here and say, "Save our ecosystem. Don't kill it." But that's not enough. We have to stand up here and say it's economy, it's many other issues. You are talking about the growth in the Front Range. Those people come up here to recreate, right? So you are talking about the growth on the Front Range. Where are those people going to go when we're gone? Are you planning on the growth of us moving down there? Because that's where our water is going to be. You know, I spoke to my daughter about this. She's six years old and smarter than all of us. And I told her about this issue today and told her what her dad was doing, told her what her Uncle Mitch was doing. And we talked about things. And, you know, at one point in time, I told her about moose. And I said, "They are not really smart. When you see a moose, don't run. Stand behind a tree." And she said, "Yep, they think pigs can fly." And I can say that this project is like "lipstick on a pig," which has been used quite a bit lately. But I talked to my daughter about this. And you know what she said? She said, "Dad, it sounds like they are looking for a Band-Aid for a short-term solution, whereas they should be looking for something to solve their solution long term." So what she did is, she gave me a pack of her Band-Aids. She loves Scooby Doo. Here is the Scooby Doo Band-Aids, $2.89. If you want a Band-Aid, it's right here. It's from my daughter. Her name is Calista Kirwan. Thank you.	2. Thank you for your comment.

Com-ment	Letter #1103	Response
	MOUNTAIN LAKES LODGE 10480 US HWY 34 GRAND LAKE CO 80447 December 28, 2008 **Re: Windy Gap Farming Project** VIA EMAIL: WTULLY@gp.usbr.gov Mr. Will Tully Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 VIA EMAIL: chandler.j.peter@usace.army.mil Mr. Chandler Peter, P.E. Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 Dear Mr. Tully and Mr. Peters, As owners of Mountain Lakes Lodge, an 11-unit lodge near Lake Granby Reservoir, I submit the following comments on the Windy Gap Farming Project Draft Environmental Impact Statement (DEIS).	
1	•Water resources and the local Grand County economy are inextricably linked. The WGFP directly impacts the environmental quality of the Colorado River, Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake, thus it will also impact the tourist and recreation industry, the lifeblood of Grand County's economy. However, very few of these impacts are measured in the DEIS – and those that are measured are underestimated through use of an inaccurate measure of "existing conditions," an inaccurate measure of the "No Action Alternative," inappropriate modeling techniques, false assumptions, outdated data, lack of quantification and omission of critical considerations. Impacts need to be further evaluated and addressed in the DEIS.	1. Socioeconomic and other effects were quantified where data on use and impacts are available. Effects of the proposed alternatives on recreation experiences and aesthetics is qualitatively described wherever possible, recognizing that these effects vary widely by individual user. Additional mitigation measures were defined and developed to avoid or minimize potential adverse impacts of the proposed project to Grand County water resources. These measures included revising prepositioning to maintain higher water levels in Granby Reservoir (FEIS Section 3.5.4), along with point and nonpoint source nutrient reduction measures to reduce nitrogen and phosphorus loading into the Fraser and Colorado rivers, and Three Lakes (FEIS Section 3.8.4). Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS. Additional discussion on existing conditions is found in response to Comment No. 2.
2	• The "Existing Conditions" figures against which impacts are measured are inaccurate and do not reflect reality. Throughout the DEIS, current Windy Gap diversions for Existing Conditions are listed as 36,352 as an average annual amount. This is a modeled PHONE (303) 246-1957 FAX (303) 321-3482 EMAIL RNAHA@COMCAST.NET	2. It is appropriate to assess effects due to the EIS alternatives based on a comparison against a modeled existing conditions as opposed to historical conditions since the hydrology associated with existing conditions reflects the current administration of the river, demands, infrastructure, and operations. As discussed in Section 7.1 of the WGFP Water Resources Technical Report (ERO and Boyle 2007), hydrologic output associated with the action alternatives is not compared with historical hydrology for the following reasons:

Com-ment	Letter #1103	Response
		• Demands have changed considerably over the course of the study period, • Certain facilities and reservoirs were not in operation for the entire study period, and • River administration and project operations have changed over the study period. Windy Gap diversions for the last 10 years (1999 through 2008) averaged 22,158 AF/yr, which is significantly higher than the average diversion of 11,080 AF/yr for the period from 1985 through 2005, as presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the Project's water rights, the same water rights that would be used to effect diversions with a WGFP. The increase in recent diversions represents the Participants' need for additional water to meet increasing water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect the recent increases in Windy Gap Participant demands. Windy Gap pumping for the 8-year period from 2001 through 2008, since Granby Reservoir last filled, averaged 27,450 AF/yr. That average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.

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2	number that is over three times actual current diversions. This flaw is repeated in every table, graph, and text and undermines all impact analyses conducted. • The presentation of data in average monthly statistics is unhelpful as visitors view and use the reservoir on a daily basis. Average monthly statistics might mask the more realistic impacts. If the conditions are unfavorable on the day that a visitor is present, that visitor is likely to go elsewhere the next time. Fish require adequate water on a moment to moment basis.	In summary, Reclamation believes the effects assessments based on net depletions to the Colorado River below Windy Gap as presented in the FEIS are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources.
3		3. Water levels in Granby Reservoir, because of its size, do not change substantially on a daily basis. Thus, average monthly elevations were considered accurate when comparing impacts to reservoir elevations, storage, and surface area. Figures 36 and 37 in the Water Resources Technical Report (ERO and Boyle 2007) show the differences in average monthly surface elevation and end-of-month contents between existing conditions and the Proposed Action every month in the whole period of record (1950–1996) at Granby Reservoir. The actual daily contents would track reasonably well with the linear interpolation of reservoir end-of-month values shown in those graphs.
4	• Low water levels in Granby Reservoir during the drought of 2002 caused this normally beautiful lake to appear unsightly. Few visitors came and those who did, acquired a poor taste for the lake that has taken years to overcome. Our business and family suffered – and continue to suffer significant economic damage because of these low water levels. Other businesses could not survive. I have little doubt that the regular low water levels that the DEIS admits will be caused by WGFP, will cause the aesthetics - the very thing that draws our customers to the lake and that support the economic well-being of businesses at Granby Reservoir – to deteriorate. We could be threatened with closure. Yet, the DEIS Socioeconomic Analysis completely disregards these impacts. Given the 2002 drought, the authors could easily have obtained historical data as to the environmental and socioeconomic impacts of low water levels on this community. However, the DEIS curiously omitted any data after 1996, completely ignoring the realities of more recent times.	4. A number of factors contribute changes in visitor use at Granby Reservoir. No statistical information is kept on visitor numbers at Granby Reservoir from which to compare visitor numbers for different years. (See note on similar comment in Letter # 1106, Comment No. 1) Certainly, visitor preference is for a fuller reservoir, but quantifying the incremental impacts on recreation and visitation strictly related to changes in lake level for a water storage reservoir that fluctuates widely is challenging. However, it is unlikely that visitation is affected by lake elevation until the reservoir gets abnormally low. This is based on an observation of usage at other Reclamation associated with the C-BT Project and Fryingpan Arkansas Project. To reduce the frequency and amount of fluctuations in Granby Reservoir, the Subdistrict has proposed to modify prepositioning operations as explained in Section 3.5.4 of the EIS The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. As a basis of comparison, the recent 2002 drought year was similar to the dry years that occurred in 1955–1957 and 1965 (within the hydrological model period of record). WGFP junior water rights would not be in priority for diversion in dry years like 2002.
5	• The DEIS reports that between one and all three boat ramps will be closed during one or more months of summer, depending upon whether it is an average or dry year. However, it concludes that "it is unlikely to noticeably affect recreation use or the quality of the recreation experience under any alternative" and fails to quantify the economic impacts. If the authors had conducted interviews of the local population and/or reviewed tax records, they would have learned that the 2002 drought has already demonstrated otherwise.	5. In average years, all boat ramps would remain accessible in the summer under the action alternatives, except for Arapaho Bay in May. In dry years, the Arapaho Bay boat ramp would be affected in August. None of the other boat ramps would be affected during the summer recreation season. It is reasonable to assume that the loss of one boat ramp during 1 month of the 5-month recreation season would
6	• The Granby Fishing Contest is an important event economically for the Granby Reservoir community. It is held in May of each year to celebrate the opening of the fishing season – which coincides with the time that the water will be low enough that at least one boat ramp will be inaccessible. If this event must be cancelled due to low water levels, or if it presents a poor aesthetic for fishing, the local economy will be compromised throughout the summer as anglers will select other places to fish.	
7	• The DEIS states that in an average year, the WGFP would trigger a reduction in Granby Reservoir's surface area of up to 6% under the Proposed Action and up to 7% under the Proposed Action – Cumulative Effects. It dismisses this reduction as "relatively small" and states that it is unlikely to noticeably affect recreation use or quality. As indicated above, this percentage is understated due to its use of "average year". Moreover, as previously stated, the report did not utilize readily available information regarding impacts felt in 2002, which were inconsistent with this conclusion. In addition, there is	

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7	ample secondary research that provides quantitative relationships between reductions in surface areas and recreation.	not affect recreation use or experiences. See response to Comment No. 4 regarding 2002 water levels. As discussed in Section 3.19.4 of the FEIS, modified prepositioning would maintain water levels in Granby Reservoir for access to the Arapaho Bay boat ramp under most conditions. Drought conditions and delivery of C-BT water could still result in water levels below the 8,250 elevation of the Arapahoe Bay boat ramp. The Recreation section in the FEIS has been changed to acknowledge potential impacts on private marinas and boat docks at Granby Reservoir.
8	• The DEIS states that in a dry year, the WGFP impacts could cause water level decreases of up 23 feet under the Proposed Action and in consecutive dry years, water levels could decrease up to 33 feet. However, it provides no baseline data upon which to compare actual current conditions, except that the mean depth of the reservoir is 74 feet. The DEIS fails to discuss cumulative impacts under these scenarios. These low water levels will clearly decrease tourism and have a significant negative impact on the socioeconomics of the area. Reduction in depth and surface area require discussions and mitigation concerning water quality, recreation, access to boat ramps, air quality and well water.	6. See responses to Comment Nos. 4 and 5. Granby Reservoir water levels have fluctuated widely in the past and would continue to do so in the future. Lower water levels in May, when the Granby Fishing Contest usually takes place, are an unfortunate consequence of these fluctuations and operation of the reservoir as a water supply reservoir. Granby Reservoir is operated to meet water demands rather than optimized for recreation use. Modifications to prepositioning, as discussed in response to Comment No. 4, would help maintain higher water levels.
9	• The DEIS provides very few mitigation solutions to the visual, land use, recreation and socioeconomic impacts, because it quantifies very few impacts.	7. Existing Granby Reservoir surface area was derived based on actual conditions during the 47-year study period. It is reasonable to assume that a 6 to 7 percent reduction in surface area in a water storage reservoir that regularly fluctuates under existing conditions would not noticeably affect recreation use or the quality of the recreation experience. See also response to Comment No. 1 on modified prepositioning for the Proposed Action to maintain higher water levels in Granby Reservoir.
10	• Prior to diverting west slope water away from the people and environment that need it, the east slope receivers should be required to maximize water conservation. Some municipalities in the arid west have decreased water consumption by as much as 30%. The burden of water scarcity should at least be shared – not borne solely by the people and environment of the West Slope.	8. Additional information has been added to the FEIS to better correlate severe drawdowns during consecutive dry years with reservoir surface area to clarify the effects of successive dry years on Granby Reservoir water levels and acreage. As a result of the proposed modifications to prepositioning, water level reductions would be limited to no more than 15 feet (777 surface acres) in successive dry years under the Proposed Action compared to existing conditions. See response to Comment No. 1 regarding socioeconomic impacts.
11	• Grand County is preparing a comprehensive scientific study and analysis, the Grand County Stream Management Plan, to identify a preferred flow regimen for streams and rivers in Grand County. This Plan will take into consideration cumulative impacts and view the river system as a whole. It will seek to avoid the worst impacts of further diversions. A decision-making process would be established to adapt operations to achieve the management plan's goals for the benefit of all parties, when specified. The DEIS fails to acknowledge this Plan. If approved, the WGFP should be mandated to adopt the Plan and its compliance should be monitored and adapted as new lessons are learned.	9. The EIS provides a reasonable and accurate description of the impacts of the alternatives, based on available data and analysis methods. Where adverse effects were identified, mitigation measures were identified to avoid or minimize those impacts. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
12	• A single EIS for both the Moffat Tunnel Expansion Project and the WGFP should be conducted in order to ensure that the cumulative impacts are evaluated and that appropriate mitigation measures are taken. Thank you for taking these comments into consideration. I look forward to seeing them addressed in the Final Environmental Impact Statement. Sincerely yours,  Richard Naha	

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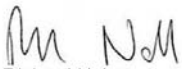
		10. The WGFP Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict. 11. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS may help meet some of the goals of the SMP. Additional discussion of the Grand County SMP was added to Section 3.9.1.4 of the FEIS. 12. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.

Com-ment	Letter #1106	Response
1	NORTH SHORE RESORT 928 COUNTY RD 64 GRAND LAKE CO 80447 December 28, 2008 **Re: Windy Gap Farming Project** **VIA EMAIL:** WTULLY@gp.usbr.gov Mr. Will Tully, Bureau of Reclamation Eastern Colorado Area 11056 West County Road 18E Loveland, CO 80537-9711 **VIA EMAIL:** chandler.j.peter@usace.army.mil Mr. Chandler Peter, P.E., Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 Dear Mr. Tully and Mr. Peters, As owners of North Shore Resort, an 11-unit lodge on the shore of Granby Reservoir, I submit the following comments on the Windy Gap Farming Project. From an economical standpoint, draining additional water out of Granby Reservoir will have a hugely negative impact. We can show you very detailed financial information that when the lake level is down, so is our income. When guests arrive at our resort, they complain and sometimes cancel their reservation if the reservoir is not full. It is very common that potential guests will ask how full the reservoir is. From an environmental standpoint, we feel that the Windy Gap Firming Project Draft Environmental Impact Statement (DEIS) defies logic, and is the standard greedy developer rhetoric for justifying their project. I can recommend several environmental consulting firms that can point out the faults in their assumptions and logic. Unfortunately, this would cost $40,000 - $60,000, and we are not in a position to spend this kind of money to protect our interests (nor should we have to). This is the most basic problem with environmental protection (and most government decisions), is that the information presented to the agencies is biased, and produced by the people that stand to benefit from the decision. The other side of the argument does not get fair representation. We hope that you analyze the situation carefully before letting this project continue. PHONE (303) 246-1957 FAX (303) 321-3482 EMAIL RNAHA@COMCAST.NET	1. The best available information was used in the analysis for the EIS. We were unable to find any information to accurately quantify the incremental impacts on recreation and visitation from changes in lake level area for a high elevation western water storage reservoir where water levels already fluctuate widely such as Granby Reservoir. No statistical information is kept on visitor numbers at Granby Reservoir from which to compare visitor numbers for different years. Certainly, visitor preference is for a fuller reservoir, but quantifying the incremental impacts on recreation and visitation strictly related to changes in lake water levels is challenging, however, it is unlikely that visitation is affected until the reservoir gets abnormally low. Also, there are a number of factors besides water levels that affect tourism and visitation. As a mitigation measure, the Subdistrict has proposed to modify prepositioning operations under the Proposed Action to moderate Granby Reservoir water level fluctuations as explained in Section 3.5.4 of the FEIS.

Com-ment	Letter #1106	Response
	Sincerely yours,  Richard Naha North Shore Resort	

Com-ment	Letter #367	Response
1	WGFP 367 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Bill Emslie MR. EMSLIE: My name is Bill Emslie, E-m-s-l-i-e. I'm a fourth-generation Coloradan. I live in Ft. Collins. I'm also a farmer in Colorado, but tonight I'm here as a representative of Platte River Power. Platte River is a project participant, with its headquarters in Ft. Collins. Now, Platte River supplies wholesale electric power to nearly 300,000 Coloradans in the communities of Estes Park, Ft. Collins, Longmont and Loveland. Responsible stewardship of natural resources, including air, land and water, is embodied in our commitment to provide customers with a reliable supply of electric energy. Windy Gap -- well, since 1985, Platte River has relied on Windy Gap to supply cooling water and processed water to Platte River Rawhide energy station for use in power generation, and also to the city of Ft. Collins. Rawhide is a generating facility comprised of natural gas, fire and combustion turbines, in addition to unit one, which is a full-fire generator requiring water as a major part of its generating process. Platte River relies on Windy Gap heavily for water for the operation of Rawhide. The Windy Gap Firming Project is significant to Platte River and to our customers in Northern Colorado who use the electricity generated from Rawhide. Firming Windy Gap will provide increased reliability to that water. Now, Platte River is aware of the importance of conserving existing water use. We have heard a lot of comments tonight about water conservation. At Rawhide, we use 100 percent of the water provided to the site as a source of cooling water and processed water. Some of processes recycle water to maximize the use of this valuable resource. For example, water to a boiler used to make steam is recycled. So is the water used for the emission control system. The largest water used at Rawhide, which is cooling of the spent steam back into water, is through an arrangement with the City of Ft. Collins, where the Windy Gap water is delivered to the city in exchange for reusable effluent that goes to Rawhide. This makes efficient use of water that is first used by the city.	1. Thank you for your comment.

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1	And, I might say, this is a concept which was suggested here tonight. Overall, Rawhide is a zero-discharge facility. I would like to close by saying that the pioneers living in the West were bound by unwritten rules, commonly referred to as the "Code of the West." This was first chronicled by Zane Gray in 1934. These homespun laws, that boiled down to a gentleman's agreement to certain rules of conduct for survival, centered on hospitality, fair play, loyalty and respect for the land. We appreciate the opportunity to work cooperatively with our neighbors here in western Colorado to firm the Windy Gap water supply in an environmentally responsible manner and look forward to working with you. Your comments tonight have been helpful for me, for Platte River, to better understand our neighbor's perspective, and we thank you for those sincere comments. I have three pages of notes I'm taking with me back home tonight. Thank you.	

Com-ment	Letter #148	Response
1	**R.W. THORPE & ASSOCIATES, INC.** *Seattle • Anchorage • Denver • Winthrop* **Planning • Landscape • Environmental • Economics** PRINCIPALS: Robert W. Thorpe, AICP, President Stephen Speidel, ASLA, Of Counsel ASSOCIATES: Jennifer Lee, RLA Barbara Baker, AICP October 27, 2008 Will Tully Bureau of Reclamation 11056 West County Rd. 18E Loveland, CO 80537 **VIA Email: wtully@gp.usbr.gov** **Reference: Windy Gap Draft EIS Comment** Dear Mr. Tully: We are writing to **express our support for the preferred alternative reservoir location**. We have been providing Master Planning, Permitting, Site Environmental Analyses for a property owner, Weatherwax Farms, Inc, entitled Elk Run at Blue Mountain, a PUD project. Our review of the EIS concludes that the preferred location is supported by the EIS. (See www.rwta.com for EIS professional expertise.) We would note that US DOI – BOR, State of Colorado and Larimer County should, as part of this project, **work to improve roads and equestrian, bike, and pedestrian trails north and south of the project (west of Carter Lake)** for area residents circulation and emergency access. Currently, Larimer County residents must drive a circuitous route through Lyons from Fort Collins. New linkages from the reservoir south should be part of improved access to the new reservoir, for recreation, emergency, and energy savings via reduced commute distances. Thank you for including our comments. Respectfully submitted, *R. W. Thorpe & Associates, Inc.* Robert W. Thorpe, AICP President 705 Second Avenue Suite 710 • Seattle WA 98104• Telephone: 206/624-6239 • Fax: (206) 625-0930 • E-Mail: rwta@rwta.com	1. If Chimney Hollow Reservoir is built, Larimer County would manage the reservoir and adjacent county property for recreation use. Preliminary plans include the development of several trails on the west side of the reservoir with possible linkage to existing trails or roads. The details on the recreation plan would be developed concurrent with reservoir design.

Com-ment	Letter #386	Response
	WGFP 386 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Canton O'Donnell MR. O'DONNELL: Thank you. I'm Canton O'Donnell, representing the Shoreline Landing Homeowners' Association that's located at the north end of Shadow Mountain Reservoir. I've been around Grand County for the better part of 78 years. My grandfather built a cabin there 110 years ago on Grand County. When I was a young lad, we all drank water directly out of the lake, pumped it up into a tank. It wasn't treated at all, and nobody got sick. The original design of the Colorado Big Thompson project is faulty. It has resulted in unintended consequences. Grand County and Shadow Mountain Lake perform as canals to transport water to the Adams Tunnel.	
1	Shadow Mountain Lake comes filled with weeds that severely impede any recreational use, wash up to residential and commercial shores with unfavorable impact, including offensive odors. The weed problem has been mitigated by draw-downs, the last one as recent as 2006 for a period of six weeks. The DEIS suggests that Adams Tunnel capacity is such that the firming project will require a more constant flow, which implies that future draw-downs may not be possible.	1. Under the Proposed Action, average monthly deliveries through the Adams Tunnel would generally be higher because of C-BT deliveries to Chimney Hollow Reservoir and deliveries to meet Windy Gap demands. The Adams Tunnel is typically shut down for maintenance during the last two weeks in October and first two weeks in November, and the last week in March and first two weeks in April. In addition, Reclamation indicated that maintenance on the Adams Tunnel may increase by about 10 percent with a firming project online. To reflect the additional maintenance requirements, the Adams Tunnel was modeled as being shut down for an additional 3.5 days in March for each alternative. These maintenance periods would still be available for future drawdown of Shadow Mountain if the Adams Tunnel is required to be shut down when Shadow Mountain is drawn down. Therefore, the potential for future draw-downs of Shadow Mountain Lake should not be reduced.
2	Grand County is suffering silting near the east end of the channel between it and Shadow Mountain; has weed growth resulting from weeds transported from Shadow Mountain during pumping; has seen algae blooms that came close to a health crisis; and constantly experiences vastly reduced clarity. Reclamation and Northern experimented with a cessation of pumping this year, which was successful in mitigating the algae bloom. Again, the increased flow may imply that such cessations will no longer be possible. Prior to the advent of CBT, residents on Grand County pumped from the lake for drinking water, without treatment. Had there been such a thing as an environmental impact study 70 years ago, the design of the Colorado Big Thompson would have been rejected. What the DEIS misses is that Grand County is not just a body of water. It is a community, with commercial enterprises, jobs, residents, visitors from	2. The Section 3.8.1.3 on Water Quality in the FEIS has been revised to note silting in Grand Lake on the east side of the channel. Reclamation and the Northern Colorado Water Conservation District will continue to evaluate operational changes with the Three Lakes system to improve water quality and clarity in Grand Lake. This ongoing effort will continue regardless of implementation of the WGFP. Nutrient mitigation proposed for the WGFP, as described in Section 3.8.4 of the FEIS, is projected to offset most of the nutrient loading associated with additional Windy Gap pumping into the Three Lakes. Impacts to recreation, economics, and other resources due to the WGFP are discussed in other sections of the EIS.

Com-ment	Letter #386	Response
3	around the world, descendants of families that settled there five and six generations ago, and is an adjunct to Rocky Mountain National Park. The addition of 30,000 or more acre-feet of flow through the two lakes will only compound an already serious design flaw. Colorado water conveys rights to water. The law does not convey any rights to anyone to ravage the environment of a community in order to transport the water to the rights holder. None of the DEIS proposals are acceptable. Prior to any increase in the volume of water going into Adams Tunnel, a method of transporting all of the diverted waters around the two lakes must be implemented. A study by an engineering firm suggested that the best alternative would be a tunnel from Shadow Mountain to the entrance of the Adams Tunnel. Such a tunnel could easily be paid by several million users of CBT water on the East Slope through a modest rate increase. Thank you.	3. Modifications in C-BT facilities, such as rerouting C-BT water around Grand Lake are beyond the scope of the WGFP EIS. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.

Com-ment	Letter #1117	Response
1	WGFP 1117 Ms. Kara Lamb and Mr. Will Tully US Bureau of Reclamation 11056 West County Road Loveland, CO 80537 Mr. Chandler J. Peter US Army Corps of Engineers 18E Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 Dear Ms. Lamb, Mr. Tully, and Mr. Peter, December 29, 2008 This letter regards the Draft Environmental Impact Statement (DEIS) for the Windy Gap Firming Project (WGFP) and the associated Section 404 Permit Application to the U.S. Army Corps of Engineers. Thank you for the opportunity to comment on this document. We respectfully request that you include the following comments in the legal record for the NEPA process on this document. **Demand for the WGFP project water is overstated.** Three factors lead the WGFP Draft EIS to overestimate project participants' future water demands: 1. An unreasonably high population growth rate; 2. Inadequate integration of water conservation and efficiency measures; and 3. Inaccurate water demand projections for power generation by the Platte River Power Authority (PRPA). Although our comments focus on the PRPA's water demands, the three listed factors are interrelated. For example, overstated population growth has two effects: it increases the projected water demands and increases projected electricity demands. Electricity generation from conventional supplies requires water; overstating electricity needs, therefore, inflates the amount of water required by a power plant. Furthermore, electricity generation from coal-fired power plants requires substantial amounts of water to cool and condense steam - one MWh of electricity generated at a coal-fired plant requires approximately 541 gallons of water. In contrast, electricity generated by wind turbines and solar photovoltaic panels use no water, and combined cycle natural gas plants require approximately 180 gallons/MWh.[1] Energy supplies in Colorado are shifting away from outmoded sources like traditional coal and natural gas generation and towards renewable supplies such as wind and solar and replacement technologies that significantly increase the efficiency of power generation from fossil fuels. Recent developments are leading the Platte River Power Authority (PRPA) away from inefficient technologies such as traditional coal and natural gas systems: a) PRPA recently signed onto The Colorado Governor's Climate Action Plan to reduce greenhouse emissions by 20% before 2020. [1] Western Resource Advocates. 2008. *A Sustainable Path: Meeting Nevada's Water and Energy Demands*. Boulder, CO.	1. The recession has indeed had an impact on growth in the past several years months in many previously fast-growing areas, and the Participant service areas are no exception. However, recessions are short-term economic phenomena, similar to economic boom growth. Long-term growth projections are normalized to "smooth out" cyclical high and low-growth periods. The population projections for the DEIS, and ultimately the water demand projections, were made on an individual Participant basis, factoring in the unique historical trends, anticipated future trends, land use characteristics, and customer base of each Participant. The projected growth rates applied to each Participant are discussed in the Appendices to the Purpose and Need Report (ERO and Harvey Economics 2005). The Colorado State Demographer's Office (SDO) prepares updated statewide and county-level population projections each year. These projections incorporate local information and input, and are continually adjusted to reflect current economic conditions. The November 2008 projections, the most recent available, show that for the counties in which the Participants are located, projected average annual growth rates range from 1.1% to 3.1% between 2005 and 2030. These recently projected rates are in line with those used for the WGFP Participants in the DEIS analyses. The Platte River Power Authority's (Platte River) participation in the WGFP is based solely on its need for a firm supply of water at the existing Rawhide Power Plant and not for a new facility. Platte River must be able to provide reliable service to existing customers. As stated in the Purpose and Need Report (ERO and Harvey Economics 2005), Platte River is evaluating its options for additional power generation to meet future demands. New power could come from a variety of sources, several of which may be less water intensive than the current coal-fired plant. The Purpose and Need Report states that "future demand projections will be continually updated by Platte River to determine the timing of power generation needs and the associated water requirements" (p. 54).

Com-ment	Letter #1117	Response
1	b) The U.S. Supreme Court compelled the U.S. Environmental Protection Agency to regulate greenhouse gas emissions in their decision on the Massachusetts *et al.* v. Environmental Protection Agency *et al.* in their April 2, 2007 decision[2]. The EPA is currently seeking public comments on draft plans to regulate greenhouse gas emissions under the Clean Air Act.[3] Under the statewide initiatives currently in place and the impending new regulatory environment for greenhouse gas emissions, it is very unlikely that permits will be issued for new power generation systems that require the amount of cooling water currently used. As PRPA develops their 21st century plans to meet energy needs they will be moving into new technologies such as renewable sources of energy, combined heat and power, combined cycle, and integrated gasification combined cycle, which significantly reduce the need for cooling water.	
2	**Water quality impacts on the Big Thompson and Cache la Poudre rivers, Carter Lake, and Horsetooth Reservoir are not adequately addressed.** Water trades involving multiple watersheds are certain to be executed under the action alternatives proposed in the DEIS. The likelihood of water trades involving C-BT and WGFP water into the Cache la Poudre River via Horsetooth Reservoir and the Charles Hansen Supply Canal were not adequately addressed in the DEIS. The WGFP DEIS states clearly that ammonia and inorganic phosphorus concentrations in WGFP supplies will rise significantly and dissolved oxygen will drop under all EIS actions, but will be highest under the proposed action. Water temperature would also rise under the proposed action. According to the DEIS, nearly all of the reservoirs impacted by the project do not currently meet water quality standards for various pollutants and other measures of water quality. Horsetooth reservoir in particular exhibits poor water quality in dissolved oxygen and phosphorus, and increases in pollutants imported from the West Slope through WGFP (such as inorganic phosphorus) as well as increases in water temperature will compound this problem further. The Cache la Poudre River below the Charles Hansen Supply Canal currently does not meet water quality standards for ammonia, nitrates, copper, dissolved oxygen, water temperature, and other water quality parameters because of the highly altered flow regime in the river and other factors. Likely water trades described in the DEIS and as proposed by the Northern Colorado Water Conservancy District, Horsetooth Reservoir and the Charles Hansen Supply Canal would be the primary vehicle for executing C-BT and other water trades into the Cache la Poudre River. Water quality impacts on Horsetooth Reservoir and the Cache la Poudre River resulting from water trades must be adequately addressed.	2. The effect of water trades on the water quality of the Poudre River was added to the discussion in the FEIS. Most of the water moving into Horsetooth Reservoir is C-BT water, with some Windy Gap (WG) water. Currently, the average annual delivery to Greeley on the Poudre River is 725 AF; under the WGFP, the total firm yield exchanged into the Poudre River via Horsetooth Reservoir would be 1,115 AF. However, on the way to the Poudre River, the WG water would be commingled several times, and the WG water would be dominated by a much greater volume of C-BT water in Chimney Hollow Reservoir, Carter Lake, and Horsetooth Reservoir. It is expected that water quality effects to the Poudre River at Greeley would be minor due to the commingling of a relatively small amount of WGFP water. In addition, the incremental nutrient loading to the Three Lakes would be offset by nutrient mitigation measures required of the Subdistrict; therefore, there would be no change in the quality of WG water delivered to the East Slope via the C-BT system.
3	**Linkages between WGFP and the proposed Northern Integrated Supply Project (NISP) are not adequately assessed.** The NISP DEIS describes linkages between the NISP and WGFP projects, whereas the WGFP DEIS dismisses linkages between the projects. Table 2.4 of the WGFP DEIS states the following: "Information on currently identified sources of water and storage locations for the NISP Project indicate that this project would have little or no interaction or overlap with the area of potential effect for the WGFP. Planned NISP diversions from the Cache la Poudre River or South Platte River would not affect operation of the WGFP or vice	3. Five of the WGFP Participants—Central Weld County Water District, Erie, Evans, Fort Lupton, and Lafayette—are also participants in the Northern Integrated Supply Project (NISP). These entities have identified future water needs that will require multiple sources of water. The fact that these entities are participating in more than one project does not mean that there is a cumulative impact. There are no substantial overlapping impacts between the NISP and the WGFP.

[2] http://www.supremecourtus.gov/opinions/06pdf/05-1120.pdf, viewed on 12/1/2008.
[3] http://www.epa.gov/climatechange/anpr.html, viewed on 12/1/2008.

Com-ment	Letter #1117	Response
3	versa." Operation plans for the proposed WGFP and NISP projects describe significant water trades between the proposed projects and existing water projects on the Front Range and Western Slope. Water trades between projects will by definition alter flows in the affected watersheds (Colorado, Cache la Poudre, Big Thompson, and St. Vrain Rivers) and hence will as a result affect the environment of and water quality in those watersheds. The effects on other rivers of these proposed water trades and operational flexibility requested in the project must be addressed. At least five of the entities subscribing to NISP water also have interests in WGFP shares. The cumulative impacts of the two projects must therefore be addressed in the WGFP DEIS.	
4	**Expansion of invasive species were not addressed in the DEIS.** The expansion of invasive species was not addressed at all in the WGFP DEIS. Tamarisk invasion is a dire and immediate threat to the riparian ecosystems of nearly every watershed in Colorado, and the C-BT and expanded operations of the WGFP have great potential to exacerbate the spread of Tamarisk into Eastern Slope rivers. Tamarisk has already been found in Douglas Reservoir and other locations on Northeast Colorado, as a result of C-BT water transfers. Invasive quagga mussels have been found in C-BT reservoir system and it appears to be only a matter of time before invasive zebra mussels are found there. These virulent, invasive species present a dire and immediate threat to the aquatic ecosystems of Eastern Slope rivers. The expanded operations of the proposed WGFP and the water trades planned under the project are extremely likely to spread these invasive species more quickly into areas already threatened by them and are likely to spread them into areas not previously threatened by them. The threats posed by them are extremely severe and must be addressed in the DEIS. Thank you for the opportunity to provide input in this process and I look forward to your response. Sincerely, Mark J. Easter 2820 Cherry Lane Fort Collins, CO 80521 On behalf of the Sierra Club Rocky Mountain Chapter 1536 Wynkoop Street Denver, CO 80202 Gary Wockner Colorado Director, Clean Water Action 1630 S College Ave Fort Collins, CO 80525	4. The potential for expansion of invasive species or noxious weeds was discussed in the DEIS. (See Sections 3.10, 3.10.4, and 3.10.5 among others) Although tamarisk (on the Colorado Noxious Weed List B) was not discussed specifically, the potential for noxious weeds, in general, to invade the proposed reservoirs and other impacted areas was described. To help prevent the spread of tamarisk and other noxious weeds from the WGFP, a noxious weed control plan would be developed and implemented, as described in the FEIS.

Com-ment	Letter #204	Response
	TABERNASH MEADOWS WATER AND SANITATION DISTRICT P.O. Box 443, Tabernash CO 80478 (970) 726-2839 Fax (970) 726-2852 Mobile (970) 531-3234 tmwsd@rkymtnhi.com December 1, 2008 Will Tully Bureau of Reclamation, 11056 West County Road 18E Loveland, CO 80537 wtully@gp.usbr.gov RE: Windy Gap Firming Project Dear Mr. Tully, My name is Lauralee Kourse and I live in Tabernash Colorado. I manage and operate the Tabernash Waste Water Treatment Facility and from February 2008 thru July of 2008 I operated the water treatment plant in the town of Town of Hot Sulphur Springs.	
1	The Tabernash Waste Treatment Plant discharges into the Fraser River. Present diversions have already affected the health of the Fraser River and further reduced flows will likely require additional treatment for phosphorus removal. This will require tertiary treatment which my District will not be able to afford.	1. The WGFP would have no direct impacts on Fraser River flows or water quality. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, would reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP would not exacerbate the algae and clarity problem in Shadow Mountain reservoir and Grand Lake. These measures would improve the quality of Fraser River, Willow Creek, and the Colorado River water downstream of these improvements.
2	The Moffat Firming project will reduce flows in the Fraser River and I am concerned that the Windy Gap Firming Project does not include the affects of this upstream depletion. That your agency is even considering additional projects that will negatively impact the Upper Colorado River Basin is disturbing and that you consider these projects in a vacuum is not acceptable.	2. The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP and are presented in cumulative effect sections for each resource in the FEIS.
3	Your report mentions; higher concentration of nutrients, higher temperatures and a diminished aquatic habitat. What your report does not address is how mitigation is implemented and who will monitor their effectiveness. How can the negative effects on the river be mitigated? The truth is they cannot!	3. As mentioned above, nutrient mitigation would prevent exacerbating the algae problem in the Three Lakes system from additional pumping as a result of the WGFP. Mitigation measures for potential elevated stream temperature in the Colorado River and effects on aquatic life would be addressed per the mitigation measures in the Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 and as adopted by the Wildlife Commission and Colorado Water Conservation Board (FEIS Appendix E). The mitigation measures in the FWMP would offset the potential impacts of the proposed project on nutrient loading to the Three Lakes and reduce the potential for exceedance of the temperature standard in the Colorado River. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. A summary of mitigation measures is included in Section 3.25 of the FEIS.
4	The Town of Hot Sulphur Springs drinking water comes directly from the Colorado River. From February thru July I witnessed rapid changes in the water quality that could not be explained. In the course of minutes the river would "silt" up and turbidity spikes would fowl the filters and decrease the water plant production. The river levels would fluctuate to the point that the intake structure for the town was almost out of the water. Windy Gap adversely affects the water quality at the Town of Hot Sulphur Springs.	
5	Back in the 1983 Northern Water Conservation District funded the Hot Sulphur water plant in 1983 they did not do this out of the kindness of their hearts they funded the	

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5	water plant because they understood that the Windy Gap Diversion project would adversely affect the downstream users. Additional diversions will cost the Town of Hot Sulphur Springs money that the town does not have. At the very least a new diversion structure and infiltration gallery will be required to assure that water quantity is available and that the quality of the water in the river is such that is can be treated.	4. In 2008, Windy Gap diverted water in April, May, and June. There is no evidence to suggest that Windy Gap diversions were responsible for the silting and high turbidity observed in the Colorado River at Hot Sulphur Springs. Windy Gap diversions do not increase the turbidity of downstream Colorado River streamflow Windy Gap Reservoir provides some settling of coarser sediments, which reduces turbidity. The events described regarding changes in turbidity could be caused by a variety of point and/or nonpoint sources upstream of Hot Sulphur Springs, including tributaries to the Colorado River. The WGFP would slightly increase the specific conductivity of the river, but should not impair Hot Sulphur Springs' drinking water facility's ability to meet drinking water standards or increase its cost for treatment. In addition, Windy Gap does not divert if the flows downstream of the reservoir are less than 90 cfs. If flows dropped to lower than 90 cfs, it was not due to Windy Gap diversions. Windy Gap's water rights are junior to Hot Sulphur Springs' water rights in the Colorado River; and Windy Gap cannot impair the Town's rights to divert the Colorado River water it is legally entitled to.
6	Lastly I would like to point out that the water rights being firmed in this project are conditional water rights. We are all aware that the rivers are already over allocated so why we are reviewing a project that would rely on conditional water rights is ludicrous. I recommend that this project be denied for all of the above reasons. Sincerely, Lauralee Kourse, Manager	5. See response to Comment No. 3 on measures to reduce nutrient loadings to the Colorado River. The WGFP would not divert water when streamflow in the Colorado River reaches the current 90 cfs minimum flow below Windy Gap Reservoir. Any reduction in flow below 90 cfs would not be attributable to the WGFP. The Subdistrict would comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In compliance with the 1980 Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project, the Subdistrict provided funding to The Town of Hot Sulphur Springs for assistance in improving its water treatment facility and wastewater treatment facility. This agreement quantified the maximum diversions for the Windy Gap Project under its decrees of up to 600 cfs and specified volumetric limits for Subdistrict diversions. The proposed WGFP would not exceed the previously agreed-upon diversion limits and, therefore, no further mitigation is required to satisfy diversion for the Town of Hot Sulphur Springs. 6. The water rights firmed in this project were made absolute in Case No. 89CW298, which awarded absolute water rights to pump 600 cfs from the Windy Gap Pump Canal and also confirmed the volumetric diversion limits as an integral part of the decree.

Comment	Letter #363	Response
1	WGFP 363 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Eldon Crabtree, MR. CRABTREE: My name is Eldon Crabtree. That's C-r-a-b-t-r-e-e. I'm president of the Three Lakes Watershed Association. We have a membership of about 170 persons in and around Grand Lake. We work in concert with the greater Grand Lake Shoreline Owners Association. It's a small community. We work in concert with everyone, including the Town of Grand Lake. I have two points. I'm not going to belabor those, because it's been said before, but: One, we vehemently believe that Grand Lake has to be removed from the CBT system; that it should no longer be used as a conduit as part of that transmountain water diversion project. I can't emphasize that enough, and it's for all the obvious reasons. They have been stated before. The second point here is that we are really concerned about the degradation about the Colorado River itself, ranging from adverse temperature conditions to algae growth, moss, and all of the other bad things that are happening to that river as a consequence of too much water being removed from it. That's why the firming project should not be allowed to proceed. That's all I have. Thank you.	1. Modifications in C-BT facilities, such as rerouting C-BT water around Grand Lake, are beyond the scope of the proposed WGFP. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act. A number of mitigation measures have been added in the FEIS that will avoid or minimize adverse effects of the Proposed Project. Mitigation measures are described in each resource section and are summarized in Section 3.25 of the FEIS.

Com-ment	Letter #33	Response
1 2 3 4	WGFP 33 **Three Lakes Watershed Association** **P. O. Box 1718** **Grand Lake, Colorado 80447** October 9, 2008 Response comments to the Windy Gap Firming Project Draft Environmental Impact Statement. My name is Elwin Crabtree and I am President of the Three Lakes Watershed Association. We have a membership of approximately 170 persons who live and/or own property in the Grand Lake area. Our primary mission is to promote and protect the environmental health of the Watershed and, more specifically, to support the monitoring of water quality in the Three Lakes Area. One result of these activities has been the observation of the operation of the CBT project and its effects on water quality in Grand Lake. The operation of that system has resulted in years of inflows of chemically affected and silt laden water into Grand Lake from Shadow Mountain Reservoir. This has resulted among other things, in a reduction of water clarity and the creation of a man made alluvial fan in Grand Lake spreading from the channel which connects Shadow Mountain Reservoir to Grand Lake. Pumping an increased volume of water through this system, as contemplated by the Windy Gap Firming Project, will only exacerbate the problem. Grand Lake is Colorado's largest natural lake. It simply should no longer be used as a physical conduit for the transport of water through the CBT system. Too, a 24 percent decrease in adult rainbow trout habitat upstream from the confluence of the Williams Fork is another unacceptable result of the firming project. The enabling legislation for the CBT project is Senate Document 80, promulgated in 1937, and that document mandates that CBT operations "preserve the fishing and recreational facilities and the scenic attractions of Grand Lake". The Draft Environmental Impact Statement for the Windy Gap Firming Project does not address this mandated responsibility. A concerted effort needs to be made which will result in a redesign of the CBT system to allow Grand Lake to function as nature originally intended. The McLaughlin Rincon study should be used as a springboard to that end. Sincerely, Elwin E. Crabtree, President Three Lakes Watershed Association	1. Comment regarding Grand Lake is noted. 2. The estimated decrease of 24 percent in available rainbow trout habitat between Windy Gap and the Williams Fork confluence with the Colorado River is the estimated maximum impact that would occur and would happen for a short period of time in about 4 out of 10 years. The loss of habitat, primarily during periods of high flow, is not expected adversely impact fish populations. Additional discussion was added to Section 3.9.2.3 of the Aquatic Resource section of the FEIS to explain the significance of flow changes to fish, including information on seasonal changes in habitat. A major assumption for application of PHABSIM is that habitat quantity controls or limits populations. Therefore the time of the year when the lowest amount of habitat is available is likely to be the limiting time period for the species being studied. In the Colorado River, winter is the time when the least amount of habitat is available to the fish species and likely controls the populations. WGFP does not divert in the winter and therefore does not change the habitat availability during the limiting time period. The changes to habitat during summer are substantial but still provide considerably more habitat than during winter. Also, the duration of the decrease is usually on the order of several weeks rather the months of low habitat as in fall and winter and therefore less likely to effect fish at the population level. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). 3. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. 4. Redesign of the C-BT system, such as rerouting C-BT water around Grand Lake are beyond the scope of the proposed WGFP. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.

Com-ment	Letter #417	Response
1 2	WGFP 417 Loveland Public Hearing Transcript for Windy Gap Firming Project October 7, 2008 David McComb MR. McCOMB: I'm David McComb. I'm the executive director of Colorado Trout Unlimited. A lot of the issues that I was going to share with you have been raised but I will try to highlight a couple of key things. First, some of the river segments that would be impacted by this diversions were found relatively recently to be eligible for wild and scenic protection by the Bureau of Land Management as part of their study process. I would encourage you to try to look carefully at this project and be sure that it does not impact this study through the remarkable values that were identified through those study. And secondly, I'd like to respectfully disagree with one of the statements that was made in framing the discussion today. By speaking about impacts of the Colorado Big Thompson project. I think it's critical that those impacts are looked at, as much as already noted earlier, to understand the condition of the Colorado River baseline and how this cumulatively with those existing past, present, and reasonably important final future projects will affect that resource. Stress on fishery resources, specifically my primary interest, is additive, and you have to understand those existing stresses in order to understand that additional increment of stress, that additional impact, and what it's really going to mean. My organization has members on both sides of the Divide, and we would like nothing better than to get to the point where we could support this as a reasonable project that can move forward but we believe that those issues of addressing the impacts on the Colorado River really need to be addressed more thoroughly. There needs to be more specific mitigation measures laid out, and we hope there will be some opportunity as those are better refined for the public to get a look at some of those and provide feedback to you in the process. And hopefully, through that kind of a vote we can get at the end to a project that addressing Front Range water demands while still respecting the needs of our state's namesake river. Thank you.	1. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for segments of the river. The Wild and Scenic designation process is described in the Recreation section of the FEIS. While the effects to river recreation described in the FEIS could relate to the recreational values along the Colorado River, the decision on Wild and Scenic River status is a determination made by the BLM as part of the planning process and is not part of the evaluation for the WGFP EIS. 2. The affected environment section of the EIS describes historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. Other sections in the EIS provide discussions on the existing condition and status of aquatic and other resources. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to make a reasonable comparison of the impacts of each of the alternatives. The same is true for other resources. Tables 3-1 and 3-20 were added to the FEIS to provide additional information on how past actions have affected Colorado River streamflow. The cumulative effects assessment in the EIS considers the impact of all past, present, and reasonably foreseeable actions, including the C-BT Project, in combination with the alternatives. The cumulative effects analysis for hydrology, water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP.

Com-ment	Letter #1126	Response

WGFP 1126

December 29, 2008

TROUT UNLIMITED

VIA EMAIL: WTULLY@gp.usbr.gov
Mr. Will Tully
Bureau of Reclamation Eastern Colorado Area
11056 West County Road 18E
Loveland, CO 80537-9711

VIA EMAIL: chandler.j.peter@usace.army.mil
Mr. Chandler Peter, P.E.
Project Manager
Denver Regulatory Office
U.S. Army Corps of Engineers
9307 South Wadsworth Blvd.
Littleton, CO 80128-6901

Re: Windy Gap Firming Project - Draft Environmental Impact Statement

Dear Mr. Tully and Mr. Peters,

Trout Unlimited, Colorado Trout Unlimited, and the Colorado Headwaters Chapter of Trout Unlimited (jointly referred to as "Trout Unlimited") offer the attached comments on the draft Environmental Statement (DEIS) for the Windy Gap Firming Project (WGFP) for your consideration. Trout Unlimited is a non-profit conservation organization with approximately 150,000 members nationally, approximately 10,000 in Colorado. Our Headwaters Chapter, based in Grand County, counts with 100 very active members. Our mission is to conserve, protect and restore coldwater fisheries and their habitat.

In addition to these comments, Trout Unlimited joins in the separate comments provided by Western Resource Advocates, the National Wildlife Federation, Grand County, and the Colorado River Water Conservation District, to the extent not inconsistent with these comments.

Thank you for the opportunity to comment. Do not hesitate to contact me at 720.470.4758 if you have any question or would like to further discuss the project.

Com-ment	Letter #1126	Response

Sincerely,

/s Amelia S. Whiting
Amelia S. Whiting, Legal Counsel
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/s David Nickum
David Nickum, Executive Director
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cc: U.S. EPA
U.S. Fish and Wildlife Services
Colorado Division of Wildlife
Colorado Water Conservation Board
Colorado Water Quality Control Division
NCWCD

Com-ment	Letter #1126	Response
	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 3 of 56 **SCOPE OF COMMENTS** It is our understanding that the DEIS has been prepared to fulfill the requirements of the National Environmental Policy Act (NEPA) to inform two primary distinct and separate federal decisions: (1) A decision by the Bureau of Reclamation (Reclamation) on whether to enter into a carriage contract agreement with Northern Colorado Water Conservancy District (Northern) and its Municipal Subdistrict (Subdistrict) allowing the use of Colorado-Big Thompson (C-BT) facilities and C-BT water as part of the WGFP and, if so, under what conditions. (2) A decision by the U.S. Army Corps of Engineers (Corps) on whether to grant a Clean Water Act, § 404 permit for the WGFP and, if so, under what conditions. It is further our understanding that, depending on the outcome of the NEPA process, Reclamation may enter into negotiations with Northern and the Subdistrict over the terms of an excess capacity, carriage contract, and that such process will be subject to additional public notice and comment. The DEIS includes an Appendix entitled "Section 404(b)(1) Analysis, Windy Gap Firming Project" (Appendix B). It is our understanding that this constitutes the Corps' analysis of the project's compliance with CWA § 404(b)(1) guidelines. These comments address the analysis and findings of the DEIS in light of NEPA requirements. Separate comments are being submitted to the Corps with respect to the CWA § 404(b)(1) guidelines analysis in Appendix B. Trout Unlimited expects to provide comments on Reclamation's contractual activities, if any, associated with the WGFP upon notice. **Trout Unlimited requests to be directly notified of any such contractual activity.** **SUMMARY OF COMMENTS** Over the last few years, Trout Unlimited has increased its focus on the upper Colorado River - in particular, the reaches of the river between Granby Reservoir and the Blue River. A designated Gold Medal trout fishery and eligible Wild & Scenic Rivers Act segment for most of its length, this reach of the river is showing signs of degradation due largely to the cumulative impacts of transmountain diversions - including C-BT Project diversions - that take over 50% of the native river flows to the Front Range and Northern Colorado. Oxygen-robbing algae and high stream temperatures are a source of concern. In late summer of 2006, local irrigators with senior water rights warned that	See specific comment responses below.

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sections of the Colorado River were going dry. This triggered a flurry of communications between Trout Unlimited, Grand County, fly fishing outfits, irrigators and others, on the one hand, and Reclamation and the Secretary of the Interior's office on the other. Some of the main sources of the problem, including current operation of the C-BT Project, are yet to be addressed.

The Proposed Action alternative for the WGFP would use C-BT Project facilities and C-BT Project water to increase depletions that could further impact these valuable fisheries. Operation of WGFP and other projects could significantly alter the River's hydrograph, reducing high peak flows, extending periods of low flows, and increasing dry-year conditions in the river. While, the DEIS states that WGFP would operate mostly during late spring and early summer months, the information presented shows that the most significant percentage increase in diversions would occur in July and August – months when flows are lower and high stream temperatures are of concern. These diversions would occur immediately before C-BT Project operations cause Colorado River flows below Granby Dam to drop to a mere 20cfs. At some point, the combination of stressors could cause a significant decline and even the demise of these valuable fisheries. Before any decisions are made that will further aggravate the conditions of the river, a thorough analysis of the direct, indirect and cumulative impacts of the WGFP on these aquatic resources and their habitat is imperative. Measures designed to prevent such impacts must be adopted. Unfortunately, as described in detail in our comments, the DEIS fails to do so.

Reclamation's first duty is to operate the C-BT Project in a manner that furthers the primary purposes of the project. Preservation of the Colorado River's fisheries is identified in SD 80 as a primary purpose of the C-BT Project. Facilitating projects such as WGFP is not. Accordingly, unless the evidence clearly shows that WGFP will not harm the Colorado River's fisheries, or strict conditions are imposed that will ensure that no such harm will result, Reclamation must deny the Subdistrict's request. As discussed in detail in our comments, the DEIS fails to provide the information and analysis needed to enable Reclamation's decision, other than denial, in this regard.

Aside from deficiencies in the DEIS' analysis, Trout Unlimited has serious questions about the legality of the Proposed Action. As further discussed in Section III of our comments, below, implementation of this alternative, as currently proposed, could significantly and illegally expand the C-BT project. Serious legal questions remain about the proposed use of CB-T Project facilities and water absent Congressional approval. Moreover, Reclamation's storage of CB-T water in Chimney Hollow, as currently proposed, would violate Colorado water law. Finally, the Proposed Action alternative is illegal unless it is proven to be consistent with Senate Document 80. Instead of evaluating the legality of the Proposed Action Alternative, the DEIS simply assumes it.

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These are fundamental flaws which render the DEIS unfit to satisfy NEPA's dual goals to (1) insure that the agency has carefully and fully contemplated the environmental effects of its action, and (2) that the public has sufficient information to challenge the agency. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). The information provided makes it impossible for the federal agencies to take "a hard look" at the environmental consequences of their actions. *Robertson,* 490 U.S. at 350-51. The information fails to provide information needed to evaluate the legality of the Proposed Action, compliance with Senate Document 80, and compliance with the requirements of the Clean Water Act. The information also fails to explain how acknowledged violations of State law will be addressed. Therefore, any further agency action with respect to WGFP must be postponed pending preparation of a supplemental environmental impact statement that addresses the DEIS's shortcomings and an opportunity for additional public review.

NEPA

NEPA represents the Nation's sweeping commitment to "prevent or eliminate damage to the environment and biosphere." *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989). The statute accomplishes this goal by focusing government and public attention on the environmental effects of proposed agency action." *Id.* By doing so, NEPA "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." *Id.*

Accordingly, NEPA requires all federal agencies to prepare an environmental impact statement (EIS) prior to major federal action significantly affecting the quality of the environment. *42 U.S.C. § 4331; Robertson,* 490 U.S. at 348. An EIS must include a detailed statement of (1) the environmental impact of the proposed action; (2) any adverse environmental effects which cannot be avoided should the proposal be implemented; (3) alternatives to the proposed action; (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. *Id.* at 348-9*; citing 42 U.S.C. § 4332.*

"The sweeping policy goals announced in § 101 of NEPA are thus realized through a set of 'action-forcing' procedures that require that agencies take a 'hard look' at environmental consequences" before resources are committed. *Id.* at 350-51.

Information provided in an EIS must be of high quality and must include accurate scientific analysis. *40 C.F.R. § 1500.1(b).* "The NEPA process is intended to help public officials make decisions that are based on understanding environmental consequences, and take actions that protect, restore and enhance the environment." *40 C.F.R. § 1500.1(c).* "When an agency is evaluating reasonably foreseeable significant adverse

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effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking." *40 C.F.R. § 1502.22.* If the information cannot be obtained because the overall costs would be exorbitant or the means to obtain the information unknown, the agencies must explain the relevance of the incomplete or unavailable information, provide a summary of existing credible evidence, and evaluate the impacts based on theoretical approaches or research methods generally accepted in the scientific community. *40 C.F.R. § 1502.22(b).*

To fulfill the essential purposes of NEPA, federal agencies are required, to the fullest extent possible, to "use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment." *40 CFR § 1500.2.* These means include (1) avoiding the impact altogether by not taking the action; (2) minimizing the impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; (5) compensating for the impact by replacing or providing substitute resources or environments. *40 C.F.R. § 1508.20.* Mitigation measures must be fully discussed in the EIS. *40 CFR §1502.14(f) and 40 CFR § 1502.16(h).*

COMMENTS

I. THE DEIS FAILS TO TAKE A HARD LOOK AT THE DIRECT, INDIRECT, AND CUMULATIVE IMPACTS OF WGFP ON THE COLORADO RIVER AQUATIC RESOURCES AND TO OTHERWISE MEET NEPA REQUIREMENTS.[1]

The DEIS evaluates impacts to the Colorado River's aquatic resources by attempting to predict changes in available juvenile and adult trout habitat and in stream water quality due to increased Windy Gap project pumping under the various alternatives. *DEIS at p. ES-14.* The DEIS also looks at the potential reduction in peak flows and effects on macroinverterbrates in a cursory manner. Habitat availability, water quality, and maintenance of peak flows are critical factors in assessing potential impacts on aquatic resources. Yet, the analysis of these factors in the DEIS is fundamentally flawed, the information provided inadequate for meaningful analysis, and impacts

[1] While the majority of these comments directly refer to the DEIS analysis of impacts to the aquatic resources of the Colorado River, these comments pertain to aquatic resource impacts in Willow Creek and elsewhere to the extent the DEIS analysis of those impacts relies on similarly flawed assumptions and incomplete information.

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1	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 7 of 56 revealed are arbitrarily dismissed. Other factors, such as exacerbation of whirling disease problems, are not analyzed at all. These deficiencies, discussed in detail in what follows, are fundamental deficiencies that preclude a meaningful review, much less the required "hard look" at the impacts of the WGFP alternatives on the aquatic resources of the Colorado River. **A. WGFP has the potential to dramatically change the hydrology of the Colorado River.** Appendix A of the DEIS includes a series of tables that reflect modeled projections of additional diversions, and concomitant Colorado River flow reductions, that would result from operation of the WGFP. Inadequate as these figures are to evaluate some of the most damaging potential impacts on the river's aquatic resources, they forecast dramatic changes in the Colorado River's hydrology. According to the DEIS, operation of the Proposed WGFP alternative would increase Colorado River diversions by 109% in July and by 144% in August. *DEIS, Appendix A, Table A-6 at p. A-11.* July diversions in a wet year would increase by 1,639%. Under current conditions, the river has experienced no Windy Gap diversions in August of wet years. The Proposed WGFP would increase those diversions from zero to an average of 3,636 acre-feet per year. *Id.* Flows below Windy Gap reservoir, expected to be the most severely impacted reach of the river, are projected to decrease by 23% in July and by 16% in August of an average year. *DEIS, Appendix A, Table A-10, at p. A-17.* Under the cumulative impacts scenario, flows are expected to drop by 24% in July and by 20% in August in an average year. *DEIS, Appendix A, Table A-33, at p. A-40.* As discussed in what follows, these modeled, anticipated changes are significantly understated and fail to capture some of the most damaging hydrological changes likely to occur as a result of operation of WGFP and other reasonably foreseeable projects. Nevertheless, as flawed as they are, these figures provide a glimpse at the magnitude of changes the Colorado River will experience and, therefore, at the project's potential to significantly impact the aquatic resources of the river. These figures, which indicate that the greatest percentage increases in river depletions caused by operation of WGFP will occur in July and August, also belie the DEIS's repeated assertion that impacts to aquatic resources will not be significant because the project would seldom operate during these critical months. *See e.g. DEIS at ES-14.* **B. The DEIS fails to take a "hard look" at how operation of the WGFP and other foreseeable projects will change the Colorado River's hydrograph and how those changes will impact the river's aquatic resources.**	1. The increased Windy Gap diversions referenced in the comment would be approximately 51 cfs in July and 10 cfs in August on average. Therefore, although the percentage increase in Windy Gap diversions is higher in those months compared to existing conditions, the average monthly percentage decrease in Colorado River flows below Windy Gap under the Proposed Action would be much less. Modeled flow changes below Windy Gap Reservoir are not understated. See response to Comment No. 4. Changes in the Colorado River's hydrograph as a result of the WGFP and other reasonably foreseeable projects are described for several locations along the Colorado River in Sections 3.5.2.6 and 3.5.3.8. The change in diversion rate based on "percentage" was not used for the aquatic resource evaluation of impacts. The aquatic habitat analysis used daily flows in cubic feet per second (cfs) to compare the alternatives to existing conditions. Volume expressed as a percentage or AF does not directly translate to habitat.

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1 2 3	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 8 of 56 As recognized in the DEIS, hydrological changes can have significant impacts on the river's aquatic resources. Flows affect the availability of habitat, water quality, and water temperature of the stream. They also affect the stream's ability to serve functions that play a critical role in supporting a healthy aquatic ecosystem, such as channel creation and maintenance and cleansing of sediments lodged in spawning beds. While recognizing the importance of adequately predicting expected flow conditions to properly assess the project's impacts on aquatic resources, the DEIS in fact fails to do so. **1. The DEIS analysis relies on a hydrological model that is inadequate as a tool to predict and assess impacts on aquatic resources.** The DEIS estimates predicted changes in available juvenile and adult rainbow and brown trout habitat within the stream using estimated flow scenarios supplied by a model prepared by Boyle Engineering (Boyle Model). *Aquatics Technical Report at 36; DEIS at 3-134.* The Boyle Model estimates flow changes at particular locations in the Colorado River based on pre-defined average dry, average, and wet year conditions. Dry and wet year conditions are defined by averaging the five driest and the five wettest years of the study period, respectively. Average year conditions are defined based on the averaging of all years within the study period. While perhaps adequate for municipal water development and planning purposes, the model is inadequate to estimate impacts to aquatic resources. ***The Model Yields Average Flow Values.*** The model reports flow estimates in terms of monthly and annual averages. These values are, in turn, used in the DEIS to report how much habitat will be lost and water quality impacts. While average values may work well for water supply development and planning purposes, they do not work to assess impacts to aquatic resources. Monthly averages can mask important stream flow changes that may have significant impacts on river ecosystems, generally, and fish species in particular. For example, flows throughout August may be very low, but a single, large flood event may elevate the month's average. Accordingly, while looking at the average flow values may not reveal a potential problem, the average may be masking harmful flow conditions that occur for most of the averaged period. As the National Academy of Sciences so aptly noted in a recent report, "planners operate on a monthly basis, but fish live on a daily basis". (*National Academy Science Report, 2007*). Indeed, the Academy considered Reclamation's use of monthly average flows to be a fatal flaw in its *Natural Flow of the Upper Klamath River* study. Given that fish and other aquatic organisms respond to changes in flow that occur on much shorter time scales, it is inappropriate to evaluate changes in habitat availability using monthly averages.[2] [2] The DEIS appears to attempt to deal with this problem by trying to estimate daily flows by using a mathematical process referred to as "disaggregation" to convert monthly values into daily values. This method of analysis uses gages that are, sometimes, far removed from the affected river reaches. In addition	2. The response to Comment Nos. 2 and 3 was combined since Comment No. 2 is an introduction to Comment No. 3. Also refer to response to Comment No. 6. The WGFP model is adequate to estimate impacts to aquatic resources. A combination of daily and monthly hydrologic data were used for evaluations of impacts to aquatic resources. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, dry, and wet conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. Daily data were used to generate flow duration curves and daily hydrographs and to determine the frequency and magnitude of daily flow changes. Hydrologic analyses based on daily variations were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily hydrologic data were used as an input parameter for the River2D model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for aquatic resource evaluations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or on a daily basis, are the same for existing conditions, the No Action Alternative, and each of the EIS alternatives. Because there are no hydrologic impacts during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects on aquatic resources for nondrought conditions. Daily flows for average, wet, and dry year types are appropriate to assess aquatic impacts. The comparisons are made between flow regimes, both hydrologic and management. The daily flows used for the analysis are based on both hydrologic year types and management alternatives. This approach has been used by other applications of IFIM, including those by the USGS and USFWS (Bovee

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	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 9 of 56	et al. 1998). Long periods of daily records do not allow the analysis of typical conditions but rather can result in a broad band of continuous habitat traces without a distinct difference between alternatives. To get a more discreet characterization, year types are used, as was the case for the WGFP. 3. See response to Comment No. 2.
4	***The Model Understates Anticipated Changes.*** As discussed in detail in Grand County's comments, the DEIS's overestimates existing Windy Gap pumping. Modeled diversions for Windy Gap under existing conditions are over three times the amount of actual diversions as reflected in the Colorado State Engineer's records. This discrepancy taints most aspects of modeling including, but not limited to, the predicted percentage increases in diversions and reduction in flows due to WGFP. By overestimating existing conditions, the DEIS understates the anticipated changes in the river's hydrograph due to WGFP and their impacts on aquatic and other resources.	4. Windy Gap diversions for the last 10 years averaged 22,158 AF/yr, which is significantly greater than the 20-year average of 11,080 AF/yr for the period from 1985 through 2005 presented in Table 3 of the Water Resources Technical Report. Windy Gap diversions were made in accordance with the project's water rights, the same water rights that would be used to effect diversions with a WGFP. Average Windy Gap pumping for the 8-year period from 2001 through 2008 since Granby Reservoir last filled was 27,450 AF/yr, and the average includes 2002 and 2004 when almost no Windy Gap water was pumped. Therefore, estimated pumping under existing conditions is much closer to recent operations than suggested in the comment. Recent diversions represent the Participants' need for additional water to meet water demands, which is supported by information presented in Chapter 1 on the Participants' water demands and needs. Modeled Windy Gap diversions under existing conditions reflect recent Windy Gap Participant demands. In summary, these recent operations show that the Participants' current water demand is greater than it was historically.
5	***The Model Overestimates Anticipated Flows.*** The Model's use of averages is likely artificially inflating predictions of flows that will be available to the fisheries and other aquatic resources in a dry, average and wet year. Because stream flow time-series tend to be positively skewed (i.e., high flows tend to be much larger than low flows) the average, mean annual runoff tends to be higher than the median annual runoff (Smakhtin 2001). By using average annual discharge values in its impacts analysis, the DEIS overestimates the amount of water flowing through the river in a typical year. Median discharge values should have been used. This problem is compounded by the fact that the data used to estimate average annual flows in wet and dry years were also included in estimates of discharge in the average year. Estimates of the average flow based on the entire 46-year record are higher than they would have been if only the 36 years that were not included in the wettest five	The comment asserts that potential impacts of additional Windy Gap diversions under the Proposed Action are minimized or underestimated based on a comparison against existing conditions. Reclamation does not believe that to be the case. The average decrease in Colorado River flows below Windy Gap between the Proposed Action and existing conditions is 21,283 AF/yr, which is the estimated increase in net depletions to the Colorado River. This reflects the net effect of additional Windy Gap diversions from the Colorado River and the difference in spills from Granby Reservoir. A considerable portion of Windy Gap water diverted from the Colorado River is delivered back to the river via a spill under the existing conditions scenario. Windy Gap operations were simulated in this manner to present the amount of water than could be diverted with the project's current water rights to meet demands even if a portion of the water is subsequently spilled from Granby Reservoir back to the Colorado River. Table 3-9 was added to the FEIS to better illustrate the water balance associated with the Proposed Action.

to its reliance on data from removed gages, the use of disaggregated monthly flows to evaluate daily impacts of the various WGFP alternatives is flawed for at least two reasons. First, the use of long-term averages to represent daily flow conditions in a highly variable river like the upper Colorado is inappropriate and leads to highly inaccurate results. Figure 1 (attached) illustrates this problem. In this example, "disaggregating" the mean monthly flow of 74 cfs based on an average daily flow distribution is unlikely to capture the true extreme high (123 cfs) and extreme low (29 cfs) flows that were actually experienced on the Colorado River in August 2002. Flows within this section of the Colorado River vary widely, even when comparing average years to average years or wet years to wet years. Because the daily pattern of flows within a given month is unlikely to be the same from year to year, long-term averages are not representative of true daily flow conditions. Second, the approach fails to model the temporal sequencing of annual flow events (wet/average/dry years). For example, the DEIS states that WGFP diversions would not increase in dry years. However, dry years create deficits in reservoir storage and diversions to fill these deficits are likely to increase in average or wet years following dry years. The right approach would be to evaluate impacts of the various project alternatives in a series of average or wet years that occur in the period following a dry year. In addition, the output from the habitat analysis is summarized in numerous exceedence charts, but these charts cannot be used to evaluate seasonal impacts of the various project alternatives. For example, what are the impacts of back-to-back dry years followed by an average to wet year on habitat availability during the most critical days in August? Relatively small impacts during the most critical times of the year can have devastating implications for aquatic species that are already at risk from low stream flows and elevated water temperatures. Consequently, the hydrologic model is inadequate as a tool to predict and assess impacts on aquatic resources.

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		In summary, Reclamation believes that the effects assessments based on net depletions to the Colorado River below Windy Gap, as presented in the FEIS, are appropriate. Windy Gap diversions under existing conditions reasonably reflect recent operations and diversions, which are much higher than the 20-year average from 1985 through 2005. In addition, this issue does not affect Windy Gap diversions in dry years; therefore, Windy Gap pumping, net depletions to the Colorado River, and associated impacts are appropriately estimated in dry years, which are typically more critical for aquatics, water quality, and other flow-related resources. 5. We do not believe that the model overestimates anticipated flows. The WGFP model was simulated using a monthly time-step for the study period from 1950 through 1996. Hydrologic output was generated for each month of the study period. This monthly output was summarized (monthly averages) for all 47 years to characterize hydrologic changes over the entire modeled period. Because averages can be skewed by extreme events, the monthly model output for the five driest and five wettest years were averaged to characterize hydrologic changes associated with the alternatives in an average dry year and average wet year, respectively. Use of mean values is a reasonable and often applied approach for evaluating hydrologic results, and for making relative comparisons of changes in flow; this approach was approved by Reclamation and the COE for purposes of this EIS. In addition, the resource evaluations did not rely solely on these average monthly values. A combination of daily and monthly hydrologic data were used for evaluations of impacts to aquatic resources. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were developed from monthly model output for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. A discussion of the use of monthly vs. daily data for flow-related resources was added to Section 3.5.2.2 of the FEIS.

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5	or driest five were used. In other words, by double counting the extreme years, the DEIS further overestimates the discharge of an average year. This may not have been a problem if the DEIS had focused on median discharge values.	
6	***The Model Yields Isolated Dry, Average and Wet Years Data.*** One of the most critical deficiencies rendering the Boyle Model incapable of producing data necessary to assess the impacts of the WGFP alternatives on aquatic resources, is the fact that the model estimates flows during each dry, average and wet year in isolation. It does not look at how often operation of the WGFP alternatives will turn what have historically been average years into dry years or wet years into average years. Nor does it look at the distribution of expected dry, average and wet years over time. Because the model does not provide the required information, the DEIS cannot and does not evaluate the most probable and potentially devastating impacts operation of the WGFP will have on the river's aquatic resources: the creation of dry year conditions, extension of low flow conditions during average and wet years, and prolongation of drought (back-to-back dry year) conditions across the years. As further discussed in what follows, failure to evaluate this critical information renders the aquatic resources impacts analysis fatally flawed.	6. The model does not estimate flows during average, wet, and dry years in isolation. The model simulates flows using a monthly time-step for the entire 47-year study period from 1950 through 1996; therefore, model output reflects the carry-over or recovery effects of additional Windy Gap diversions in wet years following dry years. The wet and dry year averages are averages of five individual years within the study period and the flows in those years reflect the effects of operations in preceding years (i.e., reservoir releases and spills). The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. For example, the existing study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), 1977 (dry year) followed by 1978 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980s. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. Use of data for the entire study period provided an indication of the overall range and frequency of aquatic habitat changes.
7	**2. The DEIS fails to evaluate the most probable and potentially harmful hydrological changes operation of WGFP and other reasonably foreseeable projects would cause.** The DEIS aquatics impacts analysis focuses on average and wet year conditions as those conditions are defined in the Boyle Model. Dry year impacts are glossed over because Windy Gap is not expected to divert during dry year conditions. *See e.g., DEIS at 3-23, 3-27, 3-92 and 3-3-137.* Dry-year conditions can have significant impacts on aquatic resources, particularly when they occur in consecutive years. As discussed in what follows, operation of the project alternatives is likely to increase the incidence of dry-year conditions and prolong drought conditions in the river. The DEIS does not ask whether or how often these dry-year and extended drought conditions will occur as a result of operation of the WGFP alternatives, or what impacts such conditions will have on aquatic resources. Rather, the DEIS looks at historical average and wet year depletions in general and anticipates water and aquatic resource impacts in isolation. In so doing, the DEIS fails to evaluate some of the most probably and potentially damaging effects of the project.	The WGFP would not increase the incidence of dry-year conditions or prolong drought conditions. Windy Gap diversions during below-average years or in the year following a drought typically do not change with additional firming storage online. The existing Windy Gap Project is able to divert water in below-average years and in wet years following dry years because there is typically storage space available in Granby Reservoir. In years when there is sufficient storage space in Granby Reservoir, there would be no difference in the amount of Windy Gap water diverted. In those types of years, the same amount of Windy Gap water would be diverted under the Proposed Action as existing conditions; however, the Participants' Windy Gap water would be stored in Chimney Hollow Reservoir as opposed to Granby Reservoir. For example, there is no difference in Windy Gap diversions between the Proposed Action and existing conditions in 1965 (wet year) following two dry years (1963 and 1964), in 1978 (wet year) following 1977 (dry year), and in 1982 (above-average year) following 1981 (dry year). Although there would be additional Windy Gap water diverted under the Proposed Action in 1957, which is a wet year following a drought period, the additional diversions would not cause Colorado River streamflows to drop to dry year conditions. For example, under the Proposed Action, an additional 32,420 AF would be diverted in July 1957 compared to existing conditions; however, flows below Windy Gap would still be considerably higher than 90 cfs. The most significant additional diversions under the Proposed Action occur in wet years following wet years, or wet years following average years, which would not increase the incidence of dry year conditions or prolong drought conditions.
8	***Low flows and dry year conditions are particularly harmful to aquatic life.*** Dry year conditions can create particularly harmful bottle-necks for aquatic life; especially in late summer and early fall as stream flows decline to critical levels. Low stream flows cause reductions in available aquatic habitat as more of the stream channel becomes desiccated and the remaining aquatic habitat becomes marginal as velocities and depths are reduced. In addition, stream temperatures fluctuate more rapidly at low flows thereby	

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	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 11 of 56	The use of daily data, year types, and habitat exceedance follow the guidelines for IFIM and are appropriate for analysis of aquatic resource impacts. 7. See response to Comment No. 6.
8	increasing the probability of exceeding both daily maximum and weekly average temperature standards. The Colorado River below Windy Gap already experiences low stream flows and high water temperatures during most dry and some average water years. WGFP could significantly exacerbate these existing problems by prolonging low flow periods in average years, increasing the frequency of dry year conditions and effectively creating prolonged drought conditions.	8. The Subdistrict developed a Fish and Wildlife Mitigation Plan (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP includes measures to address temperature increases and includes an increase in periodic flushing flows to 600 cfs. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Aquatic mitigation measures are also described in Section 3.8.4 and 3.9.4 of the FEIS.
9	***The DEIS fails to evaluate the frequency with which WGFP would increase the incidence of dry year conditions and resulting impacts to aquatic resources.*** While it is perhaps accurate to say that Windy Gap would not likely be pumping in dry years, as defined in the Boyle Model, the project would be pumping during average years. Diversions during average years, particularly in those years at the lower end of the Boyle Model average year range or following a dry year, could cause Colorado River stream flows to dip into a dry year condition, resulting in a reduction of habitat which would have been available in the absence of the project. The DEIS does not evaluate these potential impacts.	9. See response to Comment No. 6.
10	***The DEIS fails to evaluate the frequency with which WGFP would prolong periods of drought and resulting impacts on aquatic resources.*** The likelihood that operation of the WGFP alternatives will change the river hydrograph by increasing the incidence of low flow, dry year conditions is particularly high following a very dry year or series of moderately dry years. Because Windy Gap cannot divert during dry years, the need to maximize diversions in the year immediately following a dry year would be high. Other reservoirs in the area would also be maximizing their diversions at the time. From the stream's standpoint, operation of WGFP and other projects under these conditions could significantly prolong drought conditions. The drought of 2002 provides a telling example of these circumstances. WGFP could not pump during the 2002 drought. However, in 2003, the year after the drought, Windy Gap recorded its largest diversions since the project was built. *Water Resources Technical Report, Table 3 at p. 22.* The DEIS does not ask how often these conditions will re-occur as a result of WGFP, nor does it evaluate what impacts the conditions will have on the river's aquatic resources. The DEIS ignores these conditions altogether. Telling is the DEIS's decision to exclude the drought of 2002 and subsequent years from its study period and the explanation given for the exclusion. The explanation given is that the data is not relevant because WGFP would not be diverting during 2002 conditions. This conclusion entirely misses the point. Windy Gap pumping did not impact the river in 2002, it did so in 2003 and subsequent years. The impacts in 2003 and subsequent years was greater both because of the 2002 reservoir draw-downs and because the fish had already been stressed by the drought. Had the Proposed WGFP, with its additional 93,000 acre-foot reservoir, been on line, the impacts in years following the 2002 drought would have increased dramatically. By failing to include post-2002 conditions in the analysis, the DEIS not	10. See response to Comment No. 6. The amount of Windy Gap water diverted in 2003, which was an above-average year following 2002, would not change with additional Windy Gap firming storage online. There was more than sufficient storage space in Granby Reservoir to accommodate the 64,200 AF of Windy Gap water pumped that year. The WGFP would not cause *additional* depletions to the Colorado River beyond what occurred under the existing project that year. The only difference with the WGFP would be that Windy Gap water may be stored in Chimney Hollow Reservoir as opposed to Granby Reservoir. The maximum storage content in Granby Reservoir in 2003 was just over 400,000 AF. As discussed in response to Comment No. 6, the existing Windy Gap Project is able to divert water during years at the lower end of the average-year range because there is typically storage space available in Granby Reservoir. In years when there is sufficient storage space in Granby Reservoir, there would be no difference in the amount of Windy Gap water diverted. The frequency of impacts to aquatic resources are based on the daily flows for average, wet, and dry hydrologic conditions. The frequency of dry conditions is not changed with the Project and, therefore, the impact to aquatic resources in dry years is the same with and without WGFP. The change to aquatic resources during average and wet hydrologic conditions are displayed in Section 3.9.2.3 of the FEIS.

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10	only ignores one of the most severe droughts on record, it completely disregards the role of WGFP and other reasonably foreseeable projects in extending the duration of drought conditions and the impacts this would have on the Colorado River's aquatic resources.	
11	***The DEIS recognizes the impacts of multiple years of exposure on trout populations but ignores impacts due to increased drought conditions.*** The DEIS's failure to evaluate the potential for extended drought conditions due to the operation of the project is particularly troublesome given the agency consultants' recognition that multiple-year exposures can impact the fish population. The Aquatics Resources Technical Report notes: "Trout in the study area have a maximum age of approximately 6 or 7 years. Impacts that happen to trout often during their life span (e.g. 4 out of 10 years) may affect populations." *Aquatic Resources Technical Report at p. 46.* Clearly extending droughts across multiple years is analogous to increasing the frequency of droughts. In fact, it may be worse as trout that are impacted in one year will not have a chance to recover in subsequent years. By failing to evaluate WGFP's potential to increase drought conditions, the DEIS severely underestimates its impacts on aquatic resources.	11. See response to Comment Nos. 6 and 10.
12	**3. Review of the Moffat Tunnel Extension Project and WGFP in a single DEIS would have avoided many of these problems.** Several of the problems identified thus far would have been avoided by the use of a daily time-step model. There are at least two projects currently being evaluated by the Corps which use such models: Moffat Tunnel Extension and Halligan-Seaman. The Moffat Project will deplete the same critical reach of the Colorado River impacted by the proposed WGFP. CEQ regulations provide that a single EIS should be prepared for two or more projects that involve "cumulative" or "similar" actions. *40 CFR § 1508.25(a)(2) and (3)*; *Klamath-Siskiyou v. BLM*, 387 F.3d 989 (9th Cir. 2004). Cumulative actions are actions that "when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." *40 C.F.R. § 1508.25(a)(2).* Similar actions are actions which "when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *40 C.F.R. § 1508.25(a)(2).* Sometimes these actions must be considered together to prevent an agency from "dividing a project into multiple 'actions,' each of which individually has an insignificant environmental impact, but which collectively have a substantial impact." *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir.1985). The anticipated Moffat Tunnel Extension Project and WGFP are both "common" and "similar" actions which should be evaluated in a single EIS, particularly, in light of the fact that they affect the same aquatic resources in the same geographic region.	12. The WGFP and Denver Water's Moffat Project do not need to be evaluated in a single EIS. A significant effort was made by the Corps and Reclamation to coordinate the modeling efforts for the WGFP and Moffat Project EISs. Prior to initiating the modeling of EIS alternatives and cumulative effects for the Moffat Project and WGFP, the lead federal agencies for the EISs compared the hydrologic modeling approaches and tools. This process included reviews of Windy Gap diversions, Granby Reservoir, and Adams Tunnel flows simulated in PACSM, and Moffat Project and Roberts Tunnel flows simulated in the WGFP models. This process also included a detailed comparison of flows in the vicinity of the Projects' diversions, and is presented in the technical memorandum, *Comparison of Fraser River Flows Simulated in the WGFP CDSS Model with those Simulated in PACSM* (Boyle *2005*). Where possible, model data were compared on the two projects to assure that the WGFP and Moffat Project were reflected in a similar manner in each model. The cumulative effects analysis for the WGFP considered future diversions under the Moffat Project. Hydrologic data was shared so that the model simulations of the WGFP and Moffat Project were consistent and in appropriate detail for each EIS. The cumulative effects analyses for the WGFP and Moffat Project also considered the same reasonably foreseeable water-based actions.

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	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 13 of 56	In summary, the WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP because Denver changed their estimates after the hydrologic model for the WGFP was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
12	Scoping comments from the public and not one but two letters from the U.S. Environmental Protection Agency strongly recommended review of both projects under a single EIS. *See letters from Larry Svoboda, U.S. EPA to Will Tully, Bureau of Reclamation, dated November 4, 2003 and January 6, 2006 (copy to Chandler Peters, U.S. Army Corps of Engineer).* Had the agencies followed the urged course of action, the daily time-step PACSM model could have been used to evaluate the impacts of both projects. The agencies' failure to do so results in a fatally flawed DEIS.	
13	**C. The DEIS fails to take a "hard look" at the impacts of habitat availability reduction on the Colorado River's aquatic resources.** As described in Part B, above, the DEIS underestimates expected hydrological changes and altogether fails to evaluate the most likely and critical hydrological changes caused by operation of WGFP and other foreseeable projects: an increase in the extent and frequency of low flow periods, dry year, and drought conditions. This failure translates into fatal flaws in the DEIS's habitat availability analysis. Simply put, evaluating available habitat losses or gains is not possible absent an adequate assessment of current conditions and expected flow changes, and an understanding of the extent and frequency of expected low flow, dry year conditions created by the project. The DEIS's habitat availability analysis is deficient in other ways.	13. The WGFP would not increase the incidence of dry and drought year hydrologic conditions. See response to Comments Nos. 6 and 10.
14	***The analysis fails to evaluate the seasonality of habitat loss.*** Neither the proffered 380 graphs representing expected habitat availability changes, nor any other information presented in the DEIS can be used to answer the critical question: will fish habitat be available during times when fish need it? In some instances, large amounts of habitat may be available during a time of year when it is not being used by fish. Conversely, there may be other times of the year when habitat is critical but not available, thereby creating a bottleneck to fish populations. A small loss in habitat during these critical times can be immensely more significant than larger losses at other times. The DEIS provides no information from which the project's seasonal effects on fish habitat can be evaluated. This is particularly troubling because, while admitting that the most severe percentage increases in diversions from operation of WGFP would occur in July and August, when Colorado River low flows are known to be a problem, the DEIS provides no analysis or quantification of habitat reduction or impacts during these shoulder, low flow periods. Simply stating that the largest reductions in habitat are expected to occur during high flows when habitat is plentiful and, therefore, less harmful, does not amount to taking a "hard look" at the aquatic habitat availability impacts of WGFP.	14. The habitat exceedance analysis follows the guidelines for IFIM (Bovee 1982; Bovee et al. 1998). Additional tables were developed to show the seasonal changes for each year type and are included in Section 3.9.2.3 of the FEIS.
15	***The analysis reaches a number of unexplained, unsupported, and arbitrary conclusions.*** The DEIS concludes that "[t]he predicted maximum periodic decreases in fish habitat are unlikely to substantially impact fish populations at most locations." *DEIS*	15. A threshold level of 15% change was set as the point above which expected changes to habitat could be observed in the fish populations. The use of the threshold takes into account the error inherent in modeling. Several sources of error can affect the modeling used in IFIM, including field measurement and model errors. Other investigators in Oregon and Washington also have used this threshold level (Instream Flow Council 2008 Short Course - What About Those High Flows have used this threshold level? Environmental Flow Requirements for High Flows on Streams and Rivers, Moderator: Alan Wald, Washington Department of Fish & Wildlife, October 6, 2008). The rationale for selecting a

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15	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 14 of 56 *at p. 3-140.* The DEIS does not provide the basis for this conclusion, nor does it provide a criteria defining what constitutes "substantial impact" to fish populations. In fact, the conclusion appears to be directly contrary to information indicating that a large portion of the studied river reach will experience 24 to 30% decreases in fish habitat in 4 out of 10 years. It would be very hard to believe that such large habitat decreases, even in wet and average years, would not have a significant impact on trout populations. The DEIS also concludes that "[t]he more frequent habitat reductions above the Williams Fork confluence could result in a *slight* decrease in rainbow trout population." *Id. (emphasis added).* The DEIS fails to quantify such decrease, explain the basis for such conclusion, or define what is meant by "slight."[3] Finally, the DEIS concludes that "[r]eductions in brown trout habitat and the frequency of those changes are unlikely to impact current populations." *Id.* No rationale or explanation for the conclusion is provided. Does this mean that no habitat reduction is expected? Clearly, this is not the case. Does it mean that habitat will be reduced but such reductions will not affect populations? If so, how was this conclusion reached? What criteria were used to decide at which point habitat reduction affects populations and at what point it does not? Were expected flow reductions in late July and August evaluated? Neither the DEIS nor the attached reports provide information to support such conclusions.	threshold level is based on the error associated with field measurements and the error within the habitat models. In addition, the time of year also was factored into the analysis. As pointed out by earlier comments, seasonal habitat availability is important to fish species. The additional tables show the seasonal changes for each species.
16	***The DEIS improperly concludes that large flows are harmful to fish.*** Because the DEIS's estimates of changes in weighted usable area (WUA) are limited to the stream channel, the report does not account for the large increases in habitat that are produced when large flows overtop the banks and inundate the floodplain. By creating new habitat, large flows provide fish with refugia during peak discharge that allows them to survive periods of high flows. Because the report does not evaluate these habitats, it concludes that habitat declines as flows increase beyond a local maximum. For example at Breeze, brown and rainbow trout adult habitat is maximized at approximately 500 cfs. However, it is likely that habitat increases again once flows over-top the banks. Because this increase in habitat was not evaluated, the DEIS incorrectly concludes that very large flows are universally bad for fish. *DEIS at p. 3-140.* The DEIS's conclusion that large flows are harmful to fish, and implication that WGFP's flow reduction may actually improve fish habitat, is particularly troublesome because over-the bank, habitat-producing flows were historically available to the river but were dramatically reduced by operation of transmountain diversions, including C-BT. Indeed, native peak flows were reduced from an average of around 3500 cfs to less than 1000 cfs by 1950. *Water Resources Technical Report, Figure 3 at p.17.* Peak flows were further reduced when Windy Gap came on line. Yet, the DEIS arbitrarily begins the study period in 1950, in essence ignoring the impacts this huge reduction in peak flows [3] The comment is also meaningless, as rainbow trout populations were decimated by operation of the original Windy Gap project. It is assumed that this statement refers to the impacts of habitat reduction on potentially restored rainbow trout populations.	16. The EIS explains the function of high flows and the importance of high flows on creating and maintaining fish habitat. The primary analysis tool used during the runoff period was evaluation of peak flows and sediment transport. The habitat analysis included calculation of usable area during all summer months. The habitat use criteria available for this study did not include data collected during runoff. Data for habitat use during runoff are usually not collected due to the inability to safely collect the position, depth, velocity, and substrate information. The habitat is approximated with the data collected during other summer months. In this instance, the habitat suitability data were collected by CDPW and USGS personnel in several Colorado rivers during summer. The assertion that habitat would increase as flows increase is arbitrary and not based on fact. The habitat models included topography points that were past bankfull. The concept that peak flows routinely inundate large floodplains is an incorrect model for moderate to high gradient Colorado alpine streams and rivers. The stream gradient and channel form are not like low gradient meandering channels where the water width becomes very broad as flows exceed bankfull. The wetted area in the Colorado River, as in other mountain streams, is confined by either gradually or steeply rising banks. The affected environment for all resource evaluations is based on existing conditions at the time the reports were written. Existing conditions reflect past actions, such as the Windy Gap Project, which was completed in 1985 and other actions since that time. Existing conditions, as well as the No Action Alternative, provide the baseline for comparison of the incremental impacts of the Proposed Action and other alternatives.

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16	has had on the river and its aquatic resources. The DEIS's conclusion is particularly problematic because it uses the void in analysis created by the agencies' arbitrary decision to disregard the impacts of C-BT and other projects on current conditions to argue that WGFP may cause an improvement in fish habitat.	
17	**D. The DEIS fails to take a hard look at the impacts of reduced peak flows on aquatic resources.** Peak flows are critical for maintaining healthy aquatic ecosystems. Floods of varying magnitude, duration and frequency perform different ecosystem functions such as building floodplains, forming and maintaining the active channel and scouring sediments from gravels to enhance trout spawning and macroinvertebrate habitat. The DEIS acknowledges that "[p]eak flows are an important component for creating and maintaining stream habitat for aquatic life," *DEIS at p. 3-140.* Yet, it fails to adequately evaluate how these flows and stream processes will change as a result of operation of WGFP and other reasonably foreseeable projects, or how these changes will impact the river's resources.	17. See response to Comment No. 16.
18	***The DEIS does not adequately account for the benefits of large flows.*** As described in Part C, above, the report does not account for or quantify the large increases in habitat that are produced when large flows overtop the banks and inundate the floodplain.	18. See response to Comment No. 16.
19	***The DEIS improperly defines channel maintaining flows on the basis of current hydrology.*** The DEIS defines channel maintaining flows on the basis of the current hydrology. This is inappropriate as the channel was created by flows significantly greater than those currently observed. Moreover, large rivers are formed by rare events. The DEIS improperly assumes that the Colorado River is a "morphologically stable stream" that is not subject to these changes, based on the fact that aerial photos taken between 1972 and 1974 and again in the 1990's and in 2005 show few changes in its morphology. *DEIS at 3-60.* Yet, failure to evaluate historical information about river changes does not justify a conclusion that the river is morphologically stable. It is likely that flow reductions have altered the fluvial dynamics so significantly that fluvial processes like channel migration have been severely curtailed. However, from the river's perspective, even a 60-year period of stability is not an indication that the river is no longer geomorphically active. An analysis of the flows that produced the river and which are needed to maintain both channel form and habitat diversity is needed.	19. The task of the EIS is to analyze the effects of the project alternatives to the No Action alternative and existing conditions, not to conditions that existed prior to human impacts on the flows of the Upper Colorado River. See also response to Comment No. 20. It is widely acknowledged that flows near bankfull discharge (recurrence of 1.5 to 2 years) largely control the form of alluvial channels. The statement that the river is morphologically stable is based on several different analyses of hydrologic conditions as described in the FEIS, not simply on a review of aerial photos.
20	***The DEIS incorrectly assumes that currently measured 2-year peak flows are channel-maintaining flows.*** The DEIS incorrectly assumes that the 1,240 cfs flow which currently occurs at Hot Sulphur Springs every 2 years is a channel maintaining flow. *DEIS at p. 3-62.* Whether or not a 1,240 cfs is actually a bank-full discharge is uncertain from the data presented. In any event, current conditions did not create the channel so it	20. See response to Comment No. 21. The 1,240 cfs value for the 2-year peak flow was derived using the historical flow data at Hot Sulphur Springs for the 47-year study period (1950–1996) and a standard statistical method to derive the recurrence interval of historical flows. The USGS has determined that the current bankfull flow volume at the Windy Gap gage, based on monthly measurements, is 765 cfs, plus or minus 10 percent (Craig 2010). This is similar to the 1.5-year flow (640 cfs) at Hot Sulphur Springs. This information was added to the FEIS.

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	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 16 of 56	21. Reclamation does not believe that current Windy Gap diversions are overestimated. See response to Comment No. 4. The flow duration curve for Hot Sulphur Springs does show a 25% drop in flows of 1,240 cfs (the 2-year flow). However, the flow duration curves show that for flows exceeding 1,240 cfs, the decrease in frequency of occurrence would be less and become nearly the same as existing conditions for the highest flows. According to the channel maintenance flows analysis, the range of channel maintenance flows (80% of the 1.5-year flow to the 25-year flow) would occur about 3 percent of the time under the proposed action compared to about 4 percent of the time under existing conditions. This was clarified in the FEIS. A recent evaluation was completed of available streamflow vs. shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations located from below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows small changes in flows of 150 cfs or less and almost no changes at Kremmling for flows of about 1,000 cfs or less. Additional discussion was added in Section 3.7.2.3 of the FEIS.
20	is highly unlikely that today's 2-year peak discharge will maintain a channel formed under a significantly higher channel-forming flow.	
21	***The DEIS arbitrarily concludes that WGFP will result in "little change in peak flow magnitude and recurrence intervals."*** First, the DEIS's conclusion is the result of the agencies' arbitrary decision to ignore pre-1950 conditions as part of the analysis.[4] Second, the conclusion relies on an analysis that, as described in Grand County's comment letter, significantly overestimates current Windy Gap diversions and, therefore, underestimates hydrological changes due to WGFP. Third, even when compared to modeled, existing conditions, a decrease in the frequency of occurrence from 4 to 3% is not a 1% decrease in the frequency of peak flows, as the DEIS indicates. It is a 25% decrease in frequency of peak flows. This is by no means a "little" or "insignificant" change in expected peak flows.	
22	***The DEIS fails to evaluate impacts on other stream functions.*** Not only does the DEIS fail to properly characterize the anticipated reduction in large, channel forming flows due to operation of WGFP, the DEIS entirely fails to evaluate the impacts of reducing the amount and frequency of smaller but more frequent high flows that serve other stream functions, such as cleansing sediments from spawning beds.	
23	**E. The DEIS fails to take a hard look at the water quality impacts of WGFP and at how those impacts will affect the aquatic resources of the Colorado River.** Elevated stream temperatures are a significant concern in the upper Colorado River. As the DEIS indicates, stream temperature at various locations periodically exceeds levels deemed to be safe for the fisheries.[5] As discussed in these comments, operation of WGFP has the potential to significantly change the Colorado River's current hydrograph by prolonging periods of low flows in average and wet years, by creating more frequent dry-year river conditions, and by extending drought conditions across the years. These changes could not only reduce fish habitat, they could significantly aggravate existing stream temperature conditions, increasing the length of time and frequency with which fisheries and other aquatic resources are exposed to the stress of high stream temperatures. Accordingly, a thorough evaluation of the impacts of the project on stream temperatures and of the impacts such increases will have on the river's aquatic resources is critical. Unfortunately the DEIS fails to do so.	22. The EIS analyzed the change in frequency of required 450 cfs flushing flows at Hot Sulphur Springs, which indicates flows of this magnitude and higher would still commonly occur under WGFP alternatives. A recent evaluation on sediment transport was completed of streamflow vs. shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. Results of this analysis, as described in response to Comment No. 21, indicate flows would remain sufficient for sediment transport. The FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. See the FWMP (FEIS Appendix E).

[4] This is part and parcel of the DEIS's failure to evaluate the impacts C-BT and other pre-1950 projects have had on the river as part of its cumulative impacts analysis, as further discussed in Part G, below. The DEIS's failure to look at available, pre-1950 hydrological information also indicates a failure to use the proper baseline for the analysis.

[5] Current operation of the C-BT Project is likely to significantly contribute to the problem.

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23	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 17 of 56 The DEIS relies on the QUAL2K Model to predict how anticipated flow reductions in the Colorado River will change stream temperatures in the river at various locations. *DEIS at 3-92*. The QUAL2K Model is a "steady state" model that simulates future conditions based on data inputs for a single instant in time – in this case, a single day: July 25. The model was run under two different flow scenarios. One scenario uses modeled stream flows for July 25 in an average year. The other scenario assumes July 25 stream flows that approximate the 90 cfs minimum flows beyond which WGFP would not be able to divert. *Stream Water Quality Technical Report at 51*. Model results are reported in terms of percentage of stream temperature change expected on that single day. *DEIS at p. 3-141*. These stream temperature change predictions are compared with stream temperatures standards adopted by the State of Colorado, and conclusions with respect to potential impacts to aquatic resources drawn. The DEIS's analysis is deficient in three critical ways. First, it relies on a steady state, single-day model that is inherently incapable of accurately predicting stream temperature increases either on a single day or over time. Second, the DEIS compares modeled increases against the wrong State stream temperature standards deemed to be protective of cold water biota. Third, even though the model establishes that operation of WGFP will cause the State's chronic stream temperature standards to be exceeded, the DEIS arbitrarily concludes that aquatic resources will not be impacted. These deficiencies, described in detail in what follows, are fundamental deficiencies that render the DEIS incapable to inform the agencies' decision, much less enable them to meet the "hard look" requirements of NEPA.	The peak flow characteristics would reach the level that would maintain the stream geomorphology. For evaluating changes to stream morphology, analyzing changes in streamflows is a standard method of analysis. The IFIM model of aquatic habitat accounts for depth in determining available fish habitat. In addition, the discussion in the response to Comment No. 21 shows that sediment transport in the river would be maintained. Table 3-3215 in the FEIS shows that channel maintenance flows (510 to 6,520 cfs) would continue to occur under the alternatives. 23. There is no change to drought frequency with the Proposed Action. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict as described in response to Comment No. 8. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Temperature mitigation measures would reduce the potential for impacts to fish associated with the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.
24	**1. The DEIS fails to take a hard look at how stream temperatures will change as a result of WGFP.** The QUAL2K Model looks at temperature changes as a result of operation of WGFP and other projects on a single day. The model does not look at how diversions affects flows and stream temperatures in previous days or how it will affect stream temperature in subsequent days. This limitation has a number of serious consequences. First, it precludes an accurate assessment of stream temperatures on the single modeled day. Second, it precludes an assessment of stream temperature changes over time and, consequently, an evaluation of chronic stream temperature impacts. Third, it precludes an assessment of the cumulative effects operation of WGFP will have, when combined with continued diversions by other projects, including C-BT, Moffat, and the reasonably foreseeable Moffat Expansion.	24. See response to Comment No. 23.
25	***The DEIS fails to accurately predict stream temperature increases due to WGFP operation on the single modeled day.*** Stream temperatures fluctuate more rapidly when flows are low. Therefore, when low flow periods are extended, the probability that both daily maximum temperatures and weekly average temperatures will be exceeded increases. Diversions by WGFP and future projects would increase periods	25. See response to Comment No. 23.

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25	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 18 of 56 in which stream flows are reduced not only on the single, modeled day, but also in previous days. If these flow reductions have caused stream temperatures to gradually increase, a single day's diversion can increase temperatures to a point where they are harmful to aquatic life. Yet, because the model looks at neither predicted flows nor predicted temperature conditions as a result of operation of WGFP and future projects before the single modeled day, it fails to assess the projects' impacts on stream temperature and, therefore, on aquatic resources. The DEIS admits this limitation of the model when it states that State standards could be exceeded "if the existing conditions temperatures during that week were already near or above the standard." *DEIS at 3-96.* However, the DEIS fails to evaluate the extent and frequency of these conditions. Absent this information, it is impossible to draw conclusions as to the potential impacts of the WGFP and other projects on the river's aquatic resources.	
26	***The DEIS fails to evaluate how stream temperatures will increase over a series of days.*** The DEIS predicts that stream temperatures will increase by up to 0.6ºC on an average July 25 day under the Proposed WGFP. *DEIS at p. 3-96.* Based on this prediction, the DEIS concludes that operation of WGFP will not cause exceedences of the State standards under the average July 25 scenario. *Id.* However, the DEIS does not explain how this information translates into stream temperature changes in subsequent days. If the Proposed Action causes stream temperatures to increase by 0.6ºC on July 25, does that mean that temperatures will also be increased by 0.6ºC on July 26, resulting in a total 1.2 ºC increase? Will this exceed acute or chronic tolerance thresholds? What will the increase be in July 27? Will that increase exceed those thresholds? And so on. Because the DEIS relies on a steady state, single-day model, it cannot answer these critical questions.	26. See response to Comment No. 23.
27	***The DEIS fails to evaluate the potential for stream temperature conditions that have chronic impacts on aquatic resources.*** Because the model cannot predict stream temperature changes over a period of time, the DEIS does not evaluate the extent to which operation of WGFP and other projects will cause increases in stream temperature that create chronic conditions harmful to the river's aquatic resources. Chronic conditions include effects which, while not immediately lethal, have the potential to devastate fisheries - such as reduced growth, reduced reproduction, and reduced survivorship. As further described below, the State has adopted standards that reflect temperature levels trout fisheries can tolerate, both on a daily basis (acute) and over a period of time (chronic). Chronic standards are expressed as maximum weekly average tolerance levels (MWAT). To assess whether operation of WGFP and other projects will cause increases in stream temperature that will exceed chronic tolerance levels, the agencies must be able to evaluate how stream temperatures will change on a weekly basis. A steady state, single-day model which can only make predictions based on conditions for the single modeled day, cannot do this.	27. See response to Comment No. 23.

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27	The DEIS draws conclusions with respect to the project's predicted impacts on these chronic exposure levels, *DEIS at 3-96*. However, neither the DEIS nor the Stream Water Quality Technical Report on which it relies explain how these conclusions were derived or how single-day model predictions were translated into weekly values. In the end, the DEIS simply admits that chronic levels could be exceeded if existing stream temperature conditions during the week are already near or above the standard. *See DEIS at p. 3-96; Technical Report at 62*. Neither the DEIS nor the Technical report evaluate the expected frequency of this condition. As a result, the DEIS fails to assess whether and how often operation of the WGFP and other projects will cause stream temperatures to exceed the State chronic temperature standards or otherwise create chronic conditions that harmful to the river's aquatic life.	
28	***The DEIS fails to evaluate the impacts of cumulative stream temperature increases caused by operation of WGFP, combined with projects that will continue to operate when WGFP ceases to pump.*** Even more alarming is the DEIS's failure to evaluate the combined effects on stream temperature (and consequent effects on aquatic resources), caused by the combination of WGFP pumping and continued diversions by other project after WGFP operation ceases. Projects such as C-BT, Moffat Tunnel and the reasonably foreseeable Moffat Tunnel Expansion are not subject to the same limitations that restrict WGFP pumping (i.e., junior priority of water rights and minimum 90 cfs flows). Accordingly, these projects can continue to reduce stream flows well after WGFP ceases diversions. If operation of WGFP causes stream temperatures to increase, such increases will be further aggravated by continued diversions by these projects. Yet, the DEIS completely fails to evaluate such combined effects.	28. Continued operation of the C-BT and Moffat Projects is not the subject to this EIS. Effects of these projects is considered part of the existing environment and considered in the cumulative effects analysis and discussion. Effects of the Moffat expansion is considered and discussed as part of the cumulative effects analysis. The WGFP cannot divert if flows in the Colorado River drop to 90 cfs downstream of the Windy Gap diversion dam. Actions by others or naturally low precipitation that results in streamflows less than 90 cfs or elevated temperatures is beyond the control of the WGFP. The cumulative effects evaluation in the DEIS included use of the dynamic temperature model to evaluate the effects on stream temperature with reasonably foreseeable actions in place. WGFP diversions would be less under cumulative effects, but diversions by others would increase. Results were similar to direct effects; however, the *Colorado Water Users' Commitment to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River* includes releases of 5,412 AF from Granby Reservoir in the late summer and fall. Implementation of the 10825 Project would benefit aquatic habitat and reduce stream temperatures during a typically low-flow period. Temperature mitigation for WGFP as outlined in the FWMP (FEIS Appendix E) also would reduce direct effects and overall cumulative impacts.
29	**2. The DEIS fails to evaluate the most harmful stream temperature changes that would occur as a result of operation of WGFP and other projects.** The DEIS indicates that the two modeled runs (i.e., the average year July 25 run and the 90cfs July 25 run) were selected to capture a "worst case" scenario. *DEIS at p. 3-141, n. 2*. Presumably, evaluation of these worst case scenarios obviates the need to assess impacts that may occur under other scenarios. The DEIS's assumption that the modeled scenarios are worst case scenarios is unsupported. The DEIS fails to look at the truly harmful effects of the project.	29. A dynamic temperature model was used for evaluating temperature in the FEIS (Section 3.8.2.4). The QUAL2K assessment for temperature was removed from the FEIS. See response to Comment No. 23.
30	***The assertion that an average July 25 represents a worst case scenario is unfounded***. From a hydrological and climate perspective, WGFP diversions in August would clearly present a worse scenario. The DEIS indicates that, under the Proposed Action alternative, WGFP will increase Windy Gap diversions by 144% in an average August. *DEIS, Appendix A, Table A-6, at p. A-11*. Moreover, the cumulative impacts of WGFP pumping will likely be much greater after July 25, when other projects, including C-BT, Moffat Tunnel and the reasonably foreseeable Moffat Tunnel Extension continue	30. WGFP diversions after July 25 would only occur in wet years and would be infrequent. An analysis of available air temperature data since 1948 revealed that July air temperatures are generally higher than August. See response to Comment No. 23.

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30	to deplete the Colorado River, further increasing stream temperatures already increased due to operation of WGFP.	
31	***WGFP's reduction of flows to 90 cfs is not, by far, the worst case scenario for the Colorado River's aquatic resources.*** A very alarming and, unfortunately, real scenario that is not considered anywhere in the DEIS, is the operation of WGFP down to 90cfs, followed by continued flow reductions caused by operation of projects that are not restricted by the 90 cfs instream flow right held by the Colorado Water Conservation Board (CWCB). As discussed above, diversions by C-BT, Moffat Tunnel, Moffat Tunnel Expansion and, perhaps other reasonably foreseeable projects, are not restricted by the 90 cfs CWCB instream flow right. As a result, WGFP's reduction of flows down to 90 cfs is not, by far, the worst case scenario. Operation of these projects after WGFP has ceased pumping is.[6] Matters can get even worse as a result of climate changes – a cumulative impact the DEIS glosses over. Indeed, reducing flows down to 90cfs is not, by far, the worst case scenario the Colorado River fisheries would endure. The worst case scenarios are neither identified nor considered anywhere in the DEIS.	31. While Colorado River flows could drop below 90 cfs, it would not be as a result of the WGFP and therefore not an effect of the WGFP. See response to Comment No. 28. The dynamic temperature modeling also used 2007 meteorology data, which had some of the highest July and August air temperatures recorded in the basin, which could reflect climate change. However, climate change also would affect precipitation, runoff, and other variables that may influence stream temperature.
32	**3. The DEIS compares modeled stream temperature as a result of operation of the WGFP and reasonably foreseeable future projects to the wrong State Standards.** In January of 2007, the Colorado Water Quality Control Commission, the State agency charged with adoption of water quality standards under the Clean Water Act, adopted regulations that define the levels of stream temperature beyond which harm to aquatic life is anticipated (State Standards). *See Basic Standards and Methodologies for Surface Water, 5 CCR 1002-31.*[7] For cold water biota, standards were adopted based on stream temperature levels deemed to be protective of trout fisheries. Maximum daily (DM) and weekly average (MWAT) levels were established to protect all life stages of trout from acute and chronic effects. While both acute and chronic standards were adopted, the chronic (MWAT) standard was established on an interim basis, pending hearings to assess whether the established levels of protection were necessary to protect biota within specific streams in the State. *See 5 CCR 1002-31.45; 5 CCR 1002-33.41.* In June of 2008, the Commission held hearings and proceeded to adopt regulations applying final acute and chronic temperature standards to streams within the	32. The interim standards for the Colorado River were noted in the DEIS. Those were the standards in place when the document was written. The FEIS was revised using the currently adopted temperature standards when discussing the impacts of the Project. The time period November through March is not considered in the DEIS. Windy Gap would not divert during this period or the 2 months proceeding this period. Thus, there would be no effects from the Project between November and March.

[6] Indeed, while any continued diversions below 90 cfs would make a bad stream temperature situation even worse, the combination of WGFP pumping down to 90 cfs, followed by C-BT's reduction of Granby releases to 20 cfs on September 1 and continued diversions by Moffat and Moffat Expansion, would present perhaps the worst case scenario, potentially leading to a catastrophic event.

[7] The referenced State's stream temperature regulations and policy documents are available from the Colorado Water Quality Control Commission's offices and on the web, at http://www.cdphe.state.co.us/op/wqcc/StatutesRegsPolicies/StatRegsPols.html

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Colorado River basin, including the reach of the Colorado River impacted by the WGFP alternatives evaluated in the DEIS. *5 CCR 1002-33; 5 CCR 1002-33.44.* For that reach, the Commission adopted the following stream temperature standards:

Temperature	TEMPERATURE TIER	TIER COD	SPECIES EXPECTED TO BE PRESENT	APPLICABLE MONTHS	TEMPERATURE STANDARD (°C) (MWAT)	(DM)
	Cold Stream Tier II	CS-II	brown trout, rainbow trout, mottled sculpin, mountain whitefish, longnose sucker, Arctic grayling	April – Oct.	18.2	23.8
				Nov. – March	9.0	13.0

5 CCR 1002-33.6(3). These temperature standards were adopted following years of intense evaluation of available scientific literature, studies and data by the Commission's staff in conjunction with a widely represented technical advisory panel. *See 5 CCR 1002-31.44(H); 5 CCR 1002-31.45; Temperature Criteria Methodology, Policy Statement 06-1.* Accordingly, they represent the best science and consensus available at the time.

The DEIS's surface water quality analysis attempts to compare modeled stream temperature increases due to operation of WGFP and other reasonably foreseeable projects to the State Standards. Unfortunately, it uses the interim standards of 2007, not the final standards adopted in 2008. As a result, the DEIS entirely fails to evaluate the extent and frequency with which operation of WGFP and other projects will increase temperature levels beyond the acute, lethal tolerance levels reflected in the Commission's regulation adopted in 2008. The DEIS also fails to evaluate the impacts of WGFP and other projects on the State's stricter acute and chronic stream temperature standards applicable for the November through March time period.

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5. Finding that operation of WGFP will exceed State Standards, the DEIS either ignores the exceedences or arbitrarily concludes that such violations will not impact the river's aquatic resources.

The DEIS's surface water quality analysis predicts that maximum weekly average stream temperatures in the Colorado River upstream of Williams Fork will reach 18.9°C when pumping under the Proposed Action alternative reduces flows to 90 cfs. *DEIS at 3-96.* This level exceeds the maximum, chronic thermal tolerance levels deemed for rainbow and brown trout established by the Commission.

33. See response to Comment No. 23.

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33	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 22 of 56 Likewise, modeled maximum daily temperatures are expected to increase to 25.5ºC - well in excess of the 23.8ºC acute (lethal) levels deemed safe by the State. *Stream Water Quality Technical Report, Table 26 at 63.* Because it uses the wrong State Standards, the DEIS entirely ignores the projected violation of the State's acute, lethal standard. The DEIS's stream water quality analysis does acknowledge that State chronic standards will be exceeded. However, the DEIS proceeds to disregard it, arbitrarily concluding that such temperature standard violations are "unlikely to measurably impact fish populations." *DEIS at 3-141.* . The DEIS appears to base this conclusion on three rationales. First, the DEIS finds that "temperature of about 19ºC is well below lethal and chronic [tolerance] levels for rainbow cutthroat, and especially brown trout." *DEIS at p. 3-141.* Second, the DEIS states that the conclusion is based on "observed water temperatures, which occasionally exceed 19ºC under current conditions, and the healthy fish populations that exist in this reach of the river." *DEIS at p. 3-141.* In the end, the DEIS simply concludes that WGFP will infrequently divert to 90cfs when air temperatures are high and, therefore, no "measurable impacts to fish populations" will result. *DEIS at p. 3-141.* The DEIS's reasoning is scientifically flawed and ignores well-supported standards legally adopted by the State in accordance with and under the authority of the Clean Water Act. As such, the DEIS conclusion is arbitrary and capricious and contrary to law.	
34	***The DEIS arbitrarily establishes thermal tolerance levels that are inconsistent with levels established by the State after rigorous scientific review and formal rulemaking.*** State regulation states that the summertime chronic thermal tolerance level for adult and juvenile cutthroat trout is 17ºC and 18.2ºC for juvenile and adult rainbow and brown trout. For this segment of the Colorado River, State regulation establishes rainbow and brown trout tolerance levels as the State Standard. Defining thermal tolerance levels for aquatic life is challenging, to say the least. Hundreds of studies and papers on the subject are available expressing widely varying conclusions – not all of which meet the highest scientific standards. The State Standards were adopted after rigorous review and selection of literature and other data on the subject, a multi-year, open process involving a panel of experts with widely varying perspectives. In contrast, the DEIS summarily concludes that stream temperatures that exceed the State Standard are "well within" tolerance levels, citing a handful of studies. Neither the DEIS nor the Technical Report explain why these particular studies, among the myriad of studies and information, were selected.[8] The data set on which the State [8] The DEIS's conclusion that chronic temperatures of 19ºC MWAT are within tolerance levels "especially for brown trout" is particularly aggravating, as the statement disregards the impacts of these higher temperature levels on rainbow trout, which were decimated in this section of the Colorado River by operation of the original Windy Gap project and are subject to intense reintroduction efforts by the State.	34. The thermal tolerance levels reported in the DEIS are from cited literature sources. This table was removed from the FEIS. As described in response to Comment No. 23, temperature mitigation measures in the FWMP were developed to reduce the potential for exceedance of the chronic and acute state temperature standard for the Colorado River.

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34	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 23 of 56 Standards are based was adopted after rigorous analysis and an open, public process. It represents the best estimate of the thermal tolerance for those fishes. The DEIS's disregard of these formally adopted State Standards is arbitrary and capricious. Moreover, should a legitimate disagreement with the State Standards, adopted under the authority of the Clean Water Act, arise the proper means to address such differences is by requesting the State Commission to adopt different standards after a formal rulemaking hearing process that is open to the public.	
35	***The DEIS's conclusion that modeled temperature exceedences are not harmful to the fisheries because occasional exceedences currently occur and the fisheries appear to be healthy lacks any scientific basis.*** That an apparently healthy fish population persists where temperatures occasionally are high enough to produce chronic impacts is not proof that these chronic impacts are not being felt. Instead it merely indicates that, to date, the existing data set is incapable of detecting these sub-lethal, chronic effects. Indeed, it is the difficulty of demonstrating these in the field that necessitates the adoption of standards that prevent sub-lethal impacts. Yet, the DEIS appears to be arguing the converse: that the inability to detect sub-lethal effects obviates the need for the adopted standards. This is patently false. Increasing the frequency and or duration of low flow events and associated high water temperatures is likely to increase the severity of these sub-lethal effects, perhaps to the point where they are easily detectable in the fish population. The rationale behind the recently adopted temperature standards is a desire to protect the fishery and avoid measurable population impacts, impacts that may only be easily detectable when they are very, very large. The DEIS's disregard for the State Standards and conclusion that impacts do not exist because they have not been measured is arbitrary and capricious, unsupported by science and is contrary to duly adopted State regulations.[9]	35. See response to Comment No. 34. Additional discussion on temperature impacts was added to Section 3.9.2.3 of the FEIS based on use of a dynamic temperature model a discussed in Surface Water Quality Section 3.8.2.4.
36	**6. The DEIS's conclusion that WGFP will not "significantly" impact the aquatic resources of the Colorado River because WGFP will infrequently divert in July and August is arbitrary and capricious and contrary to the information presented.** After extensive discussion of potential stream temperature changes, spanning dozens of pages and significant (although not particularly helpful) technical analysis, in the end, the DEIS simply concludes that "measurable impacts to fish populations are not	36. The aquatic resource narrative in Section 3.9.2.3 of the FEIS was revised to incorporate the new water temperature information and impacts to aquatic resources. The hydrologic model indicates that WGFP diversions of more than 100 AF in August would increase from 6 times in the 47-year hydrologic modeling period to 15 times under the Proposed Action. Actual WGFP pumping in August is likely to be less because a new reservoir would typically be close to full in years when the WGFP diversions are in priority in August and the cost of pumping is high for the limited water that would be available.

[9] Before claiming that impacts to fish populations are not currently detected because the impacts either do not exist or are too small to detect, the DEIS should have at least bothered to engage in a power analysis. A power analysis is a statistical determination of how large or small an effect must be before it can be detected with a given data set. Without such an analysis, the observation that there have been no measurable impacts of temperature on fish in the Colorado River is merely evidence that the reviewed data set is inadequate – i.e., that the agencies have failed to look for those impacts hard enough.

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36	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 24 of 56 expected because flow reductions in July and August would be infrequent." *DEIS at p. ES-14.* The scientific bases for this critical conclusion are not explained. Its basic premise – i.e., that WGFP will not divert in July and August, is contrary to specific DEIS findings. The assumptions it reflects are unfounded and contrary to State regulation. As such, the conclusion is arbitrary and capricious, contrary to law, and renders the DEIS fatally flawed.	
37	***The conclusion that the project will infrequently divert in July and August is in direct conflict with the DEIS findings, as reflected in Appendix A of the DEIS.*** As discussed in Part A of these comments, Table A-6, Appendix A of the DEIS indicates that WGFP diversions under the Proposed Action alternative will increase current diversions by as much as 109% in July and by as much as 144% in August on average years – this, compared to estimated diversion increases of 13% in June, 5% in May, and 0% during the rest of the year. On a wet year, the DEIS estimates a 1639% increase in July, compared to an estimated 13% increase in diversions in June, 4% in April, and 0% for the rest of the year. *DEIS, Appendix A, Table A-6.* Model outputs also estimate that the greatest Colorado River flow reductions below Windy Gap as a result of operation of the Proposed WGFP would occur in July, when flows will be reduced by 23% in an average year. Flows in August would be reduced by as much as 16%. In a wet year, flow reductions caused by operation of the Proposed Action alternative would be the highest in August, when flows below Windy Gap would be reduced by as much as 33%. July reductions would be the next highest, at 26%. *DEIS Appendix A, Table A-10.* Indeed, the DEIS's reported hydrological model outputs belie the DEIS's conclusion and indicate that the effect of WGFP will be to significantly increase July and August diversions.	37. Narrative was added to Section 3.9.2.3 of the FEIS regarding impacts from diversion for all months, and resulting impacts to aquatic resources.
38	***The assumption that stream temperature reductions outside of July and August would not have an impact on the river's aquatic resources is groundless.*** As discussed above, the model and information provided in the DEIS and associated technical reports is incapable of supporting this or any other conclusion with respect to the magnitude of or frequency in which WGFP operations will cause exceedences of stream temperature standards, or otherwise increase temperature to levels that are lethal to the aquatic resources.	38. As described in response to Comment No. 32, temperature standards have been adopted following years of intense evaluation of available scientific literature, studies, and data by the Commission's staff in conjunction with a widely represented technical advisory panel. These standards were put into place to protect aquatic resources. Conditions that meet the standards are assumed to be fully protective. Therefore, the temperature standards are used as a threshold to determine impacts. Standards have been set for two periods – April to October and November to March. For a given flow, water temperature is generally a function of the air temperature. There can be a time lag of hours to days, but it is more likely hours for small shallow streams (Stefan 1993). For the Colorado River, there is a strong relationship between daily water and air temperatures ($R^2 > 0.9$). We looked at the period of record for average daily air temperatures at Kremmling and found that the highest temperatures occurred between July 2 and August 31. Thus, the critical time for temperature exceedances (April to October) for all alternatives (independent of operations) is July through late August. An analysis of subhourly data taken in 2007 and 2008 shows that when exceedances occur, they occur in the mid-July to August time period. Therefore, the dynamic temperature model simulates July and August. September also is simulated to capture any lingering impacts from the Project. The time period of November through March is not considered in the DEIS. The WGFP would not divert during this period or the 2 months preceding this period. Thus, there would be no lingering effects from the Project.
39	***The DEIS fails to describe the criteria by which the "frequency" of a stream temperature exceedence is deemed to yield a "measurable" impact for purposes of the NEPA analysis.*** The acute and chronic stream temperature standards adopted by the State define not only the levels, but also the frequency of exposure that results in lethal (daily) and chronic (weekly) impacts to trout fisheries. The DEIS's conclusion entirely disregards these standards, established by the State of Colorado after extensive analysis and formal hearings. The DEIS fails to provide <u>any</u> explanation as to why the State's frequency standard was disregarded, or what other criteria the agencies' relied upon to	

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39	conclude that no "measurable" impacts resulted. The conclusion is arbitrary and capricious, and contrary NEPA and well established State law.	39. The dynamic temperature simulations conducting since the DEIS was completed, as described in the FEIS (Section 3.8.2.4), provide detail on the frequency of exceedance of the chronic and acute temperature standard for existing conditions and the alternatives. This information was used in the evaluation of impacts to aquatic life in Section 3.9.2.3. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) approved by the Wildlife Commission and CWCB includes measures to mitigate potential exceedance of temperature standards. See response to Comment No. 23.
40	**F. The DEIS fails to evaluate other critical impacts of WGFP and other reasonably foreseeable projects on trout fisheries and entirely fails to evaluate impacts on other fish species.** Changes in WUA and stream temperature are not the only mechanisms by which fish can be impacted. Trout can be impacted if changes in flow lead to a collapse of important food resources like the stonefly, *Pteronarcys californica*. In addition, if reduced peak flows cause additional sediments suitable for the tubificid worm, *Tubifex tubifex*, to accumulate along the Colorado River below Windy Gap, problems with whirling disease may be exacerbated. The DEIS fails to adequately evaluate these impacts or explain why these obvious effects of changes in flows have been ignored.	40. Multiple approaches were used in the determination of impacts. Additional discussion on sediment transport from the 2D modeling was completed at the study sites and was added to Section 3.7 of the FEIS. See response to Comment No. 22. Water quality was modeled as a function of existing and predicted future conditions, including a cumulative effects analysis. Dissolved oxygen would have a slight decrease, approximately 0.1 mg/l, and concentrations would remain above the current water quality standard and are not expected to impact aquatic life. Water temperature could exceed the standard during periods of WGFP pumping; therefore, the Fish and Wildlife Mitigation Plan was developed to reduce potential impacts (See response to Comment No. 23). The river stage changes are modeled as part of the habitat modeling. The change to habitat was modeled throughout most of the range of expected flows. The combined results of the water quality modeling, hydrology analysis, and sediment transport analysis all indicate that the ecological function of the river would be maintained at most times without mitigation. At times when impacts to water quality standards may occur, mitigation has been designed to maintain stream health. Physical habitat for fish was simulated using daily flow data. There are short (2- to 4-week) periods when physical habitat for some life stages of some aquatic species is reduced. The minimum streamflows maintain the habitat needed for primary and secondary productivity. The sediment transport data show that the habitat for spawning fish and for macroinvertebrates is maintained annually. No impacts to those trophic levels are expected. The Fish and Wildlife Mitigation Plan developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 will address impacts to aquatic habitat.
41	**1. The DEIS fails to take a "hard look" at potential impacts to macroinvertebrates.** The DEIS simply states that the "habitat needs of the macroinvertebrates . . . are similar to those of the trout species" and that "species, abundance, and distribution of macroinvertebrates should remain similar to existing conditions under all alternatives based on the anticipated changes in flow and minor changes in water quality." *DEIS at p. 3-142*. However, no evidence is presented to support these conclusions. In fact, the habitat needs of fish and aquatic invertebrates are quite different since fish generally live within the water column, while invertebrates spend most of their lives on the surfaces of and in the spaces between rocks and cobble found on the streambed. Water quality conditions may change significantly at low flows as acknowledged by the Aquatic Resources Technical Report's statement that "[l]ower flows could increase the potential for exceedence of the weekly maximum average temperature for standard aquatic life." *see Aquatic Resources Technical Report at p. 38.*. As such, the DEIS conclusion that aquatic macroinvertebrate species and distribution are not expected to change is unsubstantiated.	41. See response to Comment No. 40.
42	**2. The DEIS fails to evaluate impacts to other fish species.** The DEIS focuses on two non-native trout species to the exclusion of other fish species. The DEIS states that two native species of sculpin are present within Colorado River and Willow Creek study areas. In addition, non-native dace, chub darter, and sucker can also be found in these study areas. *See Table 2, Aquatic Resources Technical Report at p. 14*. The DEIS fails to evaluate impacts of WGFP on these other native and non-native fish species.	42. Species of interest were determined during discussions with CDPW at the initiation of the study. The main concerns were impacts to trout habitat. In addition, habitat use data for many nongame species has not been collected for use in the IFIM. As such, the two trout species were selected.

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43	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 26 of 56 **3. The DEIS fails to evaluate impacts of WGFP and other reasonably foreseeable projects on whirling disease and, consequently, on the Colorado River, west slope reservoirs, and east slope streams and reservoirs fisheries.** The DEIS's aquatic resource impacts analysis entirely fails to address WGFP's potential to exacerbate the impacts of whirling disease on the aquatic resources of the Colorado River, west slope reservoirs, and east slope reservoirs and streams. This, in spite of admitting that "CDOW identified Windy Gap Reservoir as some of the most suitable habitat (low-velocity water and silt or mud substrate) for *T. tubifex*, especially those lineages that are most susceptible to infection by *M. Cerebralis* (Beauchamp et al. 2002), *DEIS at 3-133,* that "potential biological limiting factors in the Colorado River include the presence of whirling disease and its impact on rainbow trout," *Aquatic Resources Technical Report at 78*, and that Windy Gap Reservoir has historically been considered a major source for TAM production in this drainage (Nehring and Thompson 2003)." *DEIS at 3-133.* Tables 6 and 7 of the Aquatic Resources Technical Report further supports the conclusion that rainbow trout have declined dramatically since 1988. Accordingly, prior to 1988, rainbow trout generally comprised 70%-80% of the fish population in biomass, total numbers and fish over 35 cm in length. Since 1988, the rainbow population has declined to comprise only around 20% of the total population, 20%-30% of the total biomass and 25% to 50% of the fish over 35 cm in length. *Aquatic Resources Technical Report at 19-20.* In spite of these findings, the DEIS fails to evaluate the likelihood that further reduction in flows will prolong or even aggravate whirling disease conditions either in the Colorado River itself or in west slope reservoirs and east slope streams where additional Windy Gap water will be pumped. Rather, the DEIS cursory dismisses the issue, concluding that whirling disease is no longer an issue. *See DEIS at 3-133; Technical Report at 29* (citing only a "personal communication" between "B. Nerhing and Don Carlson," a Northern employee). Failure to consider the potential impacts of increased WGFP pumping on whirling disease and, therefore, on the survival of trout populations both in the Colorado River and in west slope and east slope reservoirs and streams, renders the DEIS fatally deficient. Such failure is particularly aggravating, given the acknowledged fact that approval of the original Windy Gap project was directly responsible for wiping out the rainbow trout population of the Colorado River below Windy Gap reservoir in the first place.	43. The existing conditions include past affects of streamflow temperature regimes and factors such as whirling disease. Whirling disease in particular is widespread across Colorado and has resulted in the loss or reduction of rainbow trout populations in most of the state's rivers. CDPW is actively researching ways to counteract whirling disease within the river systems, including stocking alternate species that are less susceptible to whirling disease. We are aware of the whirling disease studies conducted in Windy Gap Reservoir and downstream of Windy Gap Reservoir in the Colorado River. Mr. Barry Nehring, CDPW researcher, was contacted and asked if the whirling disease pathogens were still at a problematic level as they had been in the past. The quote from Mr. Nehring is presented in the EIS. In addition, Mr. Jon Ewert presented information regarding the current status of the fishery in the Colorado River to Denver Water and Northern on July 14, 2009. During that presentation, questions were again raised about the presence of whirling disease in Windy Gap Reservoir. Mr. Ewert reiterated that whirling disease is still present, but there appears to be a shift in the species of tubifex worms present in the reservoir. The current species are not the carriers of whirling disease in the same number as previously sampled in Windy Gap Reservoir. CDPW also is researching habitat modification as a means to curtail whirling disease. Thompson (2005, Whirling Disease/Habitat Interactions, Federal Aid Project F-427-R2, Federal Aid in Fish and Wildlife Restoration Job Progress Report, Colorado Division of Wildlife, Fish Research Section, Fort Collins, Colorado, May 2005) reports the percentage of myxospore in brown trout for several rivers in Colorado. Thompson reported that the percentage of prevalence of myxospores in brown trout in the Fryingpan River and Spring Creek in the Taylor River drainage were as high or higher than downstream from Windy Gap Reservoir. The objective of the study was to determine the response of whirling disease presence to habitat modification. Thompson could not conclude that habitat modification resulted in a marked reduction in the prevalence of whirling disease myxospores. Available information indicates that the WGFP would not increase the incidence or conditions that promote whirling disease.
44	**G. The DEIS fails to take a hard look at the cumulative impacts operation of the WGFP, combined with past, present and future reasonably foreseeable projects will have on the aquatic resources of the Colorado River.**	44. The WGFP FEIS fully considered the cumulative impacts of all reasonably foreseeable future actions using the same methodology as direct impacts. See response to Comment No. 12.

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44	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 27 of 56 So far, these comments have highlighted several DEIS deficiencies that preclude the agencies' required "hard look" at both the direct and the cumulative impacts of the WGFP. Not only does the DEIS fail to look at the cumulative impacts of WGFP combined with past, present and reasonably foreseeable future projects, it fails to look at the impacts of WGFP, either alone or in combination with other projects, across the years. Instead, the analysis focuses on individual, isolated, average days, months and years. This approach ignores the most potentially damaging impacts of WGFP on the aquatic resources of the river and renders the DEIS fatally defective. The DEIS's cumulative impacts analysis is deficient in other ways. First, it fails to evaluate the impacts ongoing project operations, including C-BT, Moffat Tunnel and Windy Gap, have had on the river's aquatic resources. Second, it fails to take into account the impacts of all reasonably foreseeable projects. Third, it fails to evaluate the cumulative impacts of reasonably foreseeable future events, such as global warming, on the Colorado River's hydrology and its aquatic resources. These deficiencies render the DEIS fatally defective.	
45	**1. The DEIS fails to evaluate the impacts ongoing project operations, including C-BT Project operations, have had on the Colorado River resources.** The DEIS's cumulative impacts analysis does not evaluate the impacts large transmountain diversions, such as C-BT and the Moffat Tunnel, have had on the resources of the Colorado River. The DEIS acknowledges that these and other diversions have had a profound impact on the hydrologic regime of the river. For example, the DEIS notes that flows at Hot Sulphur Springs have been reduced from 486,209 acre-feet per year during the period from 1905-1949, to only 175,264 acre-feet per year for the period from 1950-1994. *DEIS at p. 3-7.* Yet, the DEIS fails to evaluate the impacts these changes have had when assessing the cumulative impacts of the WGFP and other foreseeable actions on water and aquatic resources. Instead, the cumulative impacts analysis only looks at expected future changes as compared to existing conditions. *See e.g., DEIS at p. 3-1.* If the Colorado River is to avoid a death of 1,000 cuts, future changes must be placed in the broader context of the alterations that have occurred to date. The DEIS does not explain the rationale for this decision. At most, in describing the environment affected by the project, the DEIS states that "[t]he affected environment reflects any past activities that have affected the resources and that contributed to the current status of the resource." *DEIS at 3-1.* However, acknowledging that the Colorado River has been impacted by past activities is not the same as actually evaluating those impacts. Perhaps an assumption is being made that, if current flows support a healthy fishery, the changes to date have not significantly impacted the aquatic resources of the	45. The purpose of this EIS is to display the potential effects of the WGFP to assist decision making. The cumulative effects analysis includes the hydrologic conditions created by the C-BT Project; Moffat Project; and other past, present, and reasonable foreseeable future actions. Where adverse effects of the WGFP were identified, mitigation measures were developed including temperature mitigation and water quality improvements from nutrient reduction, as summarized in Sections 3.8.4 and 3.9.4 of the FEIS. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) developed by the Subdistrict will address the effects of the WGFP on aquatic resources. See response to Comment Nos. 12, 40, and 44.

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45	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 28 of 56 river. If this is the case, the assumption would have no empirical support. Indeed, it is much more reasonable to presume that the changes resulting from diverting nearly two-thirds of the native flow from the basin have been significant. The resilience (Holling 1996) of the system has almost certainly been compromised. The critical question the DEIS must answer is not how much of a change will the WGFP and other future projects will have on the Colorado River of today, but whether the Colorado River can withstand any further impacts without being pushed into an alternative state, one that cannot support healthy fish populations and other aquatic life. This question is critical to evaluating the impact of future projects and has not been asked. Ecologists have long recognized that many ecosystems exhibit nonlinear behavior in response to human perturbations. In other words, a continuous change in an independent variable (e.g., a continuous decline in stream flow) may not produce smooth changes in a response variable (e.g., fish productivity). Instead, if a threshold is crossed, the system may flip from one capable of supporting trout to one that can not. The term "ecological resilience" has been used to describe the amount of disturbance required to propel the ecosystem across a threshold and into an alternative stable state (Holling 1996). Riverine ecosystems are strongly affected by external factors like stream flow, sediment, and temperature (Groffman et al. 2006). Indeed, the quantity and timing of stream flow are critical components responsible for maintaining the ecological integrity of river ecosystems (Poff et al. 1997) and stream flow is often considered a "master variable" that limits the distribution and abundance of riverine species (Resh et al. 1988, Power et al. 1995). Continued reductions in stream flow quantity and changes in stream flow timing have the potential to fundamentally alter how the Colorado River ecosystem functions. Potential non-linear responses to the continued reduction in stream flow have not been considered in the DEIS, and this is a significant omission. Because many ecosystems such as the Colorado River's exhibit hystereses, the change required to restore the ecosystem may need to be much greater than the change that produced the change in state. The best know examples of this phenomenon are from lakes where continuously adding nutrients has little impact on water clarity before a threshold is crossed and the lake flips from a clear-water state to a cloudy, phytoplankton-dominated state (Scheffer and Carpenter 2003). Restoring the lake frequently requires not only ending the input of nutrients, but removing much of the nutrients that have accumulated in the lake. Thus, the challenge for managers is to recognize the existence of such a threshold before it is crossed. Not only does the DEIS fail to recognize the potential for these thresholds, but by evaluating cumulative impacts as the change from current conditions rather than the change from the native state, it fails to acknowledge the likelihood that the historic reductions in flow have already pushed the river close to any existing threshold.	

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46	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 29 of 56 **2. The DEIS fails to evaluate the cumulative impacts of reasonably foreseeable projects.** ***Green Mountain Reservoir Substitution and Power Interference Agreement.*** Reclamation is currently in the process of evaluating a proposal by Colorado Springs Utilities (CSU) and Western Area Power Administration to enter into a Substitution and Power Interference Agreement for Green Mountain Reservoir (Green Mountain Reservoir Agreement). http://www.usbr.gov/gp/nepa/quarterly.cfm#ecao. According to the draft EA, released in September of 2008, the proposed 40-year Agreement would allow CSU to use Wolford Mountain Reservoir and Homestake Reservoir releases to substitute Blue River diversions at times when Green Mountain Reservoir does not fill. Currently, CSU is only allowed to meet its substitution obligations by releasing water from Williams Fork Reservoir or storage sources in the Blue River. As acknowledged in the draft EA, the proposed Agreement would impact the reach of the Colorado River between its confluence with Williams Fork and its confluence with the Eagle River. *See Draft EA, Figure 3-1.* Impacts include reduction of flows within the reach. *See Draft EA, Chapter 3.* Yet, the DEIS entirely fails to include the Green Mountain Substitution and Power Interference Agreement in the list of reasonably foreseeable projects, to include in any way evaluation of this project in its cumulative impacts analysis, or to explain why the project was not included – this, in spite of the fact that the project is currently being considered by the lead federal agency for the WGFP.	46. Additional discussion on the Colorado Springs Substitution and Green Mountain Reservoir Substitution and Power Interference agreements was added to Section 2.8.2—Reasonably Foreseeable Actions of the FEIS. As described in detail in the FEIS, these agreements would have a minor contribution to cumulative effects and, therefore, they were not included in the analysis.
47	***Northern Integrated Supply Pipeline (NISP).*** Likewise, the Corps is currently evaluating a CWA § 404 permit application for the Northern Integrated Supply Project. https://www.nwo.usace.army.mil/html/od-tl/eis-info.htm. Although the primary identified sources of water for the project are located in the east slope, use of upper Colorado River sources for initial fill and/or storage at times when east slope sources are not available seems to be contemplated. Yet, neither the project's draft EIS, nor the DEIS for WGFP evaluate the potential cumulative impacts of such potential diversions. The DEIS determines that NISP is not a reasonably foreseeable project because "identified sources of water and storage locations for the NISP Project indicate that this project would have little or no interaction or overlap with the area of potential effect for the WGFP." *DEIS, Table 2-4 at 2-53.* If such remains the case and the Corps specifically prohibits NISP's use of west slope water, then evaluation of the project in the context of WGFP is not necessary. Otherwise, the project and its potential cumulative impacts must be evaluated.	47. Windy Gap water could potentially be rented by NISP participants as part of the initial fill of Glade Reservoir. NISP participants can either collectively or separately rent Windy Gap water from Windy Gap Participants. If the rented Windy Gap water is greater than the Participants' need that year, the water could be delivered into Glade Reservoir. The water would be delivered to the NISP from Horsetooth Reservoir through the Windsor Extension into the Poudre Valley Canal. Should Windy Gap water be used for the initial fill of Glade Reservoir, it would have minimal cumulative impacts since it merely changes the delivery location of WGFP Participants' water.
48	**3. The DEIS fails to evaluate the cumulative impacts of climate change and global warming and mountain pine beetle killed trees.**	48. The discussion of climate change in Section 2.8.2—Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation discussed for applicable resources in Chapter 3 of the FEIS.

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48	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 30 of 56 The DEIS recognizes that "climate change and global warming may affect the WGFP" and that records and models indicate "higher temperatures which can result in earlier snowmelt and runoff, higher evaporation rates and increased water demands" *DEIS at 2-44*. However, the DEIS fails to evaluate these potential impacts and simply states that "there is no accepted science for transforming the general concept of variations in global temperature into incremental change is stream flow at particular locations". Moreover, the DEIS fails to acknowledge the potential impacts of global warming on exacerbating already anticipated stream temperature problems. A recent report prepared by CU-NOAA Western Water Assessment for the Colorado Water Conservation Board (CWCB) reports that recent hydrologic studies of the Upper Colorado River Basin project multi-model average decreases in runoff ranging from 6% to 20% by 2050 compared to the 20th century average.[10] The report concludes that "[a] warming climate will amplify Colorado's water related challenges, with potential reductions and seasonal shifts in water availability. While most water resource planning has been based on past hydrology, ***water users can no longer assume that future conditions will reflect the past. Although there are uncertainties regarding aspects of the science, enough information is available to support adaptation planning for risks associated with climate variability and change*** [emphasis added].[11] Clearly, acceptable science is currently available and the DEIS should utilize this science to evaluate how climate change may affect its assumptions regarding impacts to stream flows and stream temperature.	49. Quantitative effects of pine bark beetle infestation on hydrology and water quality are difficult to accurately predict because of the numerous assumptions that would be necessary. The FEIS indicates the types of effects that could occur as a result of pine beetle-killed trees. These impacts are possible with or without the WGFP and would be similar for all of the alternatives. Additional discussion was added in Section 2.8.2.1 on the potential impact of pine bark beetle-killed trees.
49	The DEIS also recognizes that pine beetle killed trees may have implications for the upper Colorado River such as increased rate of nitrification and increased wildfire risk resulting in increased runoff, sediment and nutrients *DEIS at 2-44* but the DEIS fails to quantitatively evaluate these impacts, particularly in terms of sedimentation and sediment transport problems, or to acknowledge potential impacts on stream temperature.	
50	**H. The DEIS fails to take a "hard look" at the effects of WGFP and other reasonably foreseeable projects on the special State and Federal designations of the affected reach of the Colorado River.** The Colorado River reaches impacted by the proposed WGFP and other foreseeable projects are subject to special designations by both the State and the Federal government. The reach between Windy Gap Reservoir and the river's confluence with Troublesome Creek is a Gold Medal Trout fishery, designated by the Colorado Wildlife Commission. This designation is reserved to outstanding fisheries that meet specific fish	50. The "Gold Medal" trout fishery policy was adopted in 1992 by the Colorado Wildlife Commission. This designation is limited to "waters of the State accessible for fishing to the general angling public." Only public waters are designated as Gold Medal; private waters are excluded by the above requirement. To be eligible for designation, the water must consistently produce a minimum standing stock of 60 pounds of trout per acre and a minimum of 12 quality trout (>14 inches long) per acre. The Colorado River public waters currently designated as Gold Medal meet these criteria (131 pounds of trout per acre and 51 fish greater than 14 inches). It is expected that the CDPW management of the river will continue as it has in the past, and the Gold Medal designation will remain in place. The impacts from WGFP are expected to be offset by mitigation, and no impact to the Gold Medal designation is expected from the project as noted in Section 3.9.2.3 of the FEIS. Because the impacts to fish are expected to be minor with implementation of mitigation measures, no adverse impact to fishing opportunities are likely.

[10] *Climate Change in Colorado. A Synthesis to Support Water Resources Management and Adaptation. A Report by the Western Water Assessment for the Colorado Water Conservation Board. 2008. Page 2.*

[11] *Id. at p. 43.*

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50	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 31 of 56 population and size requirements.[12] There are only 10 designated Gold Medal streams in the State of Colorado. The reach of the river between Gore Canyon and State Bridge is a designated "Wild Trout" stream. This designation is based on the presence of naturally reproducing, wild trout.[13] In addition to the State's Gold Medal and Wild Trout designations, these reaches of the river are "eligible" reaches for Wild & Scenic Rivers Act (WSA) designation. *Final Wild and Scenic River Eligibility Report for Kremmling and Glenwood Springs Field Offices, Colorado (March 2007).* The reaches have been deemed to be eligible under the WSA because they exhibit "outstandingly remarkable values" (ORVs) that merit protection. These values include outstanding fishing recreation. BLM manages these and other eligible rivers so as to not adversely affect their values pending potential WSA designation by Congress. *BLM Policy 8351 (Dec. 22, 1993).* In addition, over the last year, a stakeholders group has been working diligently to develop a plan for the management of the upper Colorado River (including the reach between Gore Canyon and State Bridge), to protect the ORVs of the reach. Reclamation staff has been attending these meetings. The DEIS acknowledges most of these designations in its Recreation analysis. *See DEIS at 3-3-231 to 234.* Yet, the DEIS's analysis entirely fails to evaluate the direct, indirect and cumulative impacts of WGFP on these designations, focusing the recreation impacts analysis almost exclusively on boating recreation (e.g., rafting and kayaking). At most, the DEIS' recreational analysis makes conclusory statements regarding the anticipated impacts on fishing recreation, but provides no supporting analysis. *See DEIS at 3-26 and 3-246* ("Potential effects to aquatic resources from changes in streamflow and reservoir storage on the West Slope and East Slope as discussed in Section 3.9 are unlikely to adversely impact sports fishing under any alternative based on estimated effects to fish habitat and communities."). As discussed at great length in these comments, the aquatic resources impacts analysis on which the DEIS's conclusions rely is fatally flawed and, therefore, cannot provide the basis for such conclusion. Moreover, while the aquatic impacts analysis discusses potential impacts to fisheries, it does not evaluate the impacts of the project on [12] The Colorado Wildlife Commission defines a Gold Medal Water as a lake or stream that supports a standing stock of at least 60 pounds per acre, and contains an average of at least 12 quality (14" or longer) trout per acre. *See Colorado Wildlife Commission's "Wild and Gold Medal Trout Management Policy" September 18, 1992 (Revised June 12, 2008).* [13] The Colorado Wildlife Commission defines Wild Trout Water as a lake or stream that contains a wild trout population; a wild trout population is one that can sustain itself through natural reproduction and recruitment and a wild trout is a trout that completes its entire life cycle in a lake or stream. *Colorado Wildlife Commission's "Wild and Gold Medal Trout Management Policy" September 18, 1992 (Revised June 12, 2008).*	

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50	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 32 of 56 the quality of those fisheries for recreational use.[14] For example, the size of fish plays as critical a role in the State's designations as their numbers. Yet, the aquatic impacts analysis only describes potential impacts to fish populations. Because BLM's outstanding recreational fishing designation is largely based on the State's designation criteria, the aquatics analysis also fails to yield the information needed to assess potential impacts on designation under the WSA. Even more alarming is the fact that the DEIS reaches the same conclusions with respect to impacts of the project on fishing recreation downstream of Gore Canyon, even though the aquatic resource impacts analysis does not look at impacts to fisheries in that reach. Indeed, relying on an inadequate hydrological analysis, the aquatic resource impacts analysis ends its review at the Colorado River's confluence with the Blue. *See DEIS at 3-6 and 3-130.* Yet, even under inadequate hydrological modeling used in the aquatic resources impacts analysis, on an average, operation of WGFP and other reasonably foreseeable projects will reduce flows in the reach below Gore Canyon by 13%. This, compared to an average of 20% flow reduction below Windy Gap Reservoir. *DEIS, Table 2-7 at 2-67.* Operation of WGFP and other reasonably foreseeable projects would reduce stream levels below Gore Canyon by a foot. *DEIS, Table 2-7 at 2-67.* This is by no means an insignificant reduction. And, while during high flow conditions the impacts on aquatic resources may not be as great, they could be quite significant during low flows. Unfortunately, the DEIS only provides annual average information. It does not explain what the anticipated reductions would be from month to month or, even more importantly, from day to day. As such, DEIS's failure to evaluate aquatic resource impacts downstream of Gore Canyon renders the analysis fatally flawed and the DEIS's determination that fishing recreation values in that reach are unlikely to be impacted arbitrary and capricious. Finally, it should be noted that BLM has already forewarned Reclamation of concerns with respect to the cumulative impacts of WGFP and other reasonably foreseeable projects on the Colorado River, both upstream and downstream of its confluence with the Blue River. In its comment letter regarding Reclamation's consideration of the Green Mountain Agreement, BLM expresses concern with the cumulative impacts of individual projects, including WGFP, on the reach of the Colorado downstream of Gore Canyon, noting that "[n]one of the in *individual* projects appear to have overwhelmingly negative impacts on the ORVs . . . however, *collectively*, the reasonably foreseeable projects could have substantial impacts on the ORVs over time." [14] It should be noted that the Recreation Technical Report simply cites "Miller Ecological 2008" as sole support for its repeated assertions that no impacts to fishing recreation or Gold Medal fisheries would result. *See e.g., Technical Report at 43 and 51.* Presumably, this cite refers to the Aquatic Resources Technical Report prepared in connection with the DEIS. Yet, like the DEIS, the Aquatic Resources Technical Report reaches no conclusions with respect to impacts to either fishing recreation or State designations.	

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51	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 33 of 56 *Memorandum dated October 14, 2008, from David Stout to Kara Lamb (emphasis in the original).* **I. The "no action" alternative evaluated in the DEIS is speculative and the associated analysis misleading.** NEPA requires federal agencies to evaluate all reasonable alternatives to a proposed action, including the option of taking no action. *Silverton Snowmobile Club v. U.S. Forest Service*, 433 F.3d 772, 780 (10th Cir. 2006). The DEIS defines the "no action" alternative for the WGFP as follows: "Under this alternative, Participants would maximize delivery of Windy Gap water according to their demand, water rights, availability of storage in Granby Reservoir, and existing Adams Tunnel conveyance constraints. The City of Longmont would enlarge Ralph Price Reservoir by raising the dam and increasing storage capacity by 13,000 AF (Figure ES-3)." *DEIS at ES-5.* The DEIS goes on to estimate future diversion scenarios by Windy Gap project participants, in the absence of WGFP, and reaches conclusions regarding anticipated impacts of such diversions on the environment, including aquatic resources. These estimated impacts are then compared with the predicted impacts associated with the action alternatives, as well as to existing conditions. As further explained below, the DEIS's assumptions regarding these future scenarios are speculative and its estimated impacts artificially inflated when compared to the action alternatives. As a result, the DEIS fails to properly evaluate the impacts of opting to take no action.	51. The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connection to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing projects and/or agreements, prior court decisions and CEQ guidance define No Action as no change to existing operations or agreements. For WG and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, #3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demands increase within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is a reasonable action for the City of Longmont, and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts included under the No Action alternative included increased Windy Gap diversions which can currently be done without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative or that the No Action alternative should be no diversions.
52	**1. The "no action" alternative defined by the DEIS is speculative.** To be reasonable, an alternative must be non-speculative. *Utahans for Better Transportation v. U.S. Department of Transportation*, 305 F.3d 1152, 1172 (10th Cir. 2002). The "no action" alternative defined in the DEIS is speculative. First, the "no action" alternative assumes enlargement of Longmont's Ralph-Price reservoir based on a statement by the City of Longmont that it may pursue such enlargement should the WGFP not be approved. Yet, the feasibility of such project as well as conditions that may significantly restrict its development are not evaluated in the DEIS. Indeed, enlargement of Ralph-Price Reservoir would require CWA § 404 permits and other approvals, the evaluation of which would raise environmental impacts considerations, and potential restrictions, similar to those raised by the proposed WGFP. The DEIS does not evaluate such potential restrictions but, rather, assumes that the project would allow diversions to the full extent requested by Longmont. This assumption is simply unreasonable and so is the assumption that, given potential	52. The No Action Alternative is not speculative. As indicate in response to Comment No. 51, the WGFP Participants can and would increase their Windy Gap diversions in the future regardless of implementation of the WGFP. Longmont would pursue increased storage for its Windy Gap water and, like other Participants, could increase its Windy Gap diversions from existing conditions regardless of additional storage.

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52	restrictions, reservoir enlargement would remain an economically feasible prospect for Longmont. The agencies themselves conclude that such an endeavor is speculative when they decline to evaluate the cumulative impacts of enlarging Union Park Reservoir, another Longmont project, as too speculative. *See DEIS, Table 2-4 at p. 2-52.* The DEIS neither discusses nor evaluates whether enlargement of Ralph-Price Reservoir is more or less likely or the basis for such determination. As further discussed below, the agencies' arbitrary selection of assumptions for the action and no action alternatives artificially inflates the impacts of the no-action alternative while at the same time minimizing the impacts of the action alternatives.	
53	Second, the "no action" alternative assumes that, in the absence of WGFP, participants will find ways to fully utilize their Windy Gap shares and projects future diversions, and resulting impacts, accordingly. Yet, the DEIS finds this very same exercise too speculative for cumulative impacts analysis. *See DEIS, Table 2-4 at p. 2-53 (Firming Remaining Windy Gap Project Units).* As a result, the impacts of future share development are reflected in the "no action" alternative, but they are not reflected in the action alternatives. As further discussed below, such arbitrary approach artificially inflates the impacts of the "no action" alternative, while minimizing the potential impacts of the action alternatives.	53. The WGFP Participants have all demonstrated a future need for use of Windy Gap water. WGFP Participants would maximize their use of Windy Gap water when it is available by using the full amount based on their unit ownership, the same as Windy Gap unit holders not in the WGFP. The Method for Effects Analysis for Water Resources in Section 3.5.2.2 was expanded to provide additional discussion on existing conditions and the No Action Alternative.
54	Third, the DEIS fails to evaluate the economic feasibility of the no action alternative when compared with less costly means potentially available to participants to meet their future water needs. Indeed, as discussed in comments submitted by Western Resource Advocates, adoption of the conservation measures consistent with the State's conservation objectives would enable project participants to meet their demand through 2030. When other projects currently proposed and involving several of the WGFP participants is considered, firm supplies will exceed participant demands through 2050. Indeed, the original Windy Gap project, approved over 20 years ago, anticipated the need for 90,000 acre-feet of storage but assumed that such storage would be supplied by the project participants. Such assumption did not come to fruition, hence the proposed WGFP. The DEIS's assumption that, absent WGFP, project participants will choose the high cost of pumping Windy Gap water over conservation and other solutions is both unsupported and highly speculative.	54. Water conservation is a key component of meeting future water needs by all WGFP Participants. The Participants have committed to and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Six of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. While improvements in water conservation may delay the timing of additional deliveries of WGFP water, conservation is not sufficient to meet projected future water demands. For some Participants, additional sources besides the WGFP and conservation are needed to meet projected demands.
55	**2. The DEIS relies on inconsistent assumptions that artificially inflate the impacts of the no action alternative and understate the impacts of the action alternatives.** The environmental impacts of the WGFP action alternatives and, as currently defined, the "no action" alternative are directly tied to the amount and timing of additional Colorado River and Willow Creek diversions expected under each alternative.	55. See response to Comment Nos. 56 and 57.

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55	The more water diverted, the greater the likelihood and extent of impact – particularly at times when stream flows are low. Accordingly, the DEIS impacts analysis relies on a hydrological model that attempts to predict the amount and timing of future diversions expected under each alternative. While the approach is reasonable, the DEIS arbitrarily uses a different set of assumptions when predicting future diversions associated with WGFP action alternatives than those used to predict future diversions under the no action alternative. As a result, the diversions (and impacts) of the no action alternative are artificially inflated and the diversions (and impacts) of the action alternatives artificially reduced, thus creating the misleading impression that, should the agencies choose to do nothing, the environmental impacts would still be quite large.	
56	***The DEIS improperly and arbitrarily uses two different participants' "demands" to evaluate anticipated future diversions under the action and the no action alternatives.*** According to the DEIS, the hydrological model predicts future diversions under both the action and no action alternatives using the project participants' estimated future "demands." The term is not defined anywhere in the DEIS or associated technical reports. Under common usage, "water demand" is the amount of water requested by users to satisfy their needs. As such, the water demands of project participants are in no way tied to the availability of Windy Gap water supplies or how those supplies are delivered. As a result, water demands under both the action and no action alternatives should be the same. Under the DEIS, they are different. Indeed, the DEIS estimates that demands under the no action alternative will be twice as much as the demands under the action alternatives. *See e.g., Water Resources Technical Report at 81.* Under the no action alternative, it assumes that all Windy Gap unit holders, including non-project participants, will divert as much water as they can to satisfy their needs. Under the action alternatives, the DEIS only assumes diversions by WGFP project participants necessary to satisfy their firm yield. The bases for this inconsistent approach are not explained.	56. Windy Gap Project water demands are described in detail in Section 7.9 of the WGFP Water Resources Technical Report, and an overview is provided in Section 3.5.2.9 of the DEIS. Water needs under both the action and No Action alternatives are the same, but the "demands" used in the WGFP model, which drive diversions to storage and releases, vary by alternative. The term "demand" used for modeling reflects not just the amount of water requested by users to satisfy their water needs, but also the manner in which the Windy Gap project would operate with or without firming storage online. The Participants' demand under the No Action Alternative would be 36,665 AF/yr vs. 29,130 AF/yr under the Proposed Action. Water demands under the action and No Action alternatives are different because the Windy Gap project would be operated differently with additional firming storage online. Windy Gap Participant demands under the No Action Alternative are higher because Participants would try to maximize their use of Windy Gap water, when it is available, as their water needs increase in the future. Since there is no firm yield associated with Windy Gap supplies without additional storage online, the Participants would maximize their Windy Gap deliveries when available under the No Action Alternative because that water could be spilled in subsequent wet years. Firming storage allows Windy Gap water to be carried over for use in dry years because it is not at risk of being spilled from Granby Reservoir. Under the action alternatives, the demands were set so that the Participants' needs could be met each year, including the modeled drought years. In other words, the Participants' demands reflect the maximum amount of Windy Gap water that could be delivered each year without any shortage. If the Participants' demands used in the WGFP model were higher under the action alternatives, the Participants would experience shortages in dry years.
57	***The DEIS's no action alternative analysis assumes future diversions that the agencies specifically rejected as too speculative for inclusion in their action alternatives impacts analysis.*** As the language cited above indicates, the DEIS's "no action" alternative analysis assumes that both WGFP participants and Windy Gap unit holders that are not participating in the project, will strive to fully divert under their shares. *See also Water Resources Technical Report at p. 51* ("No Action reflects the estimated future full demand by all Windy Gap unit holders, including those entities not in the WGFP."). Yet, when evaluating whether to include full development by Windy Gap unit holders in its cumulative impacts analysis, the DEIS concludes that such development is too speculative to include in the evaluation. *See DEIS, Table 2-4, at 2-53.* As a result of this arbitrary disparity of treatment, increased diversions by Windy Gap shareholders are taken into account in the no action alternative but appear to be omitted from the action alternatives analysis. Thus, the DEIS artificially inflates diversions and	57. The demand for Windy Gap water by the nonparticipants (Windy Gap unit holders that are not participating in the Project) is the same under the No Action and action alternatives. Therefore, nonparticipant diversions of Windy Gap water were taken into account, and those diversions increase in a similar manner under both the No Action and action alternatives compared to existing conditions.

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57	resulting impacts under the no action alternative while at the same time understating the true impacts of the action alternatives.	Increased diversions by nonparticipants were not omitted from the action alternatives analysis. Because nonparticipant demands are the same under both the No Action and action alternatives, the DEIS does not artificially inflate diversions and understate impacts of the action alternatives. Table 2-4 in the DEIS states that no specific projects have been identified to firm the yield of those units not included in the proposed WGFP. Therefore, under both the No Action and action alternatives, the nonparticipants would maximize their Windy Gap deliveries when available because their Windy Gap water could be spilled in subsequent wet years, which is reflected in the model.
58	**3. The DEIS fails to provide needed information to enable the agencies' or the public's evaluation of the adequacy of modeled predictions under the "no action" alternative analysis.** The DEIS fails to explain critical assumptions used in modeling anticipated future diversions under the no action alternative. According to the DEIS, the model assumes that most project participants will try to maximize their Windy Gap diversions within existing project constraints (e.g., junior priority of water rights and limits in C-BT system capacity). However, the DEIS does not describe how most project participants would do so, by how much, or the assumptions used regarding Windy Gap water availability and participant system capacity and need.	58. The WGFP Modeling Report Addendum (Boyle, July 2006) includes information on the model parameters and assumptions for each of the EIS scenarios, including the No Action Alternative. That report describes how Project Participants would maximize their Windy Gap deliveries and how much each Participant's demand would be under the No Action Alternative. Specifically, Section 3.2.1 of that report describes Participants' Windy Gap operations under the No Action Alternative, including Windy Gap diversions to Granby and Ralph Price reservoirs, storage of Windy Gap water in Granby and Ralph Price reservoirs, Windy Gap demands, and Windy Gap deliveries. Section 2.1.10 of that report describes Windy Gap demands under the No Action Alternative. Assumptions regarding Windy Gap water availability for diversion are similar to the action alternatives, as described in Section 3.5.2.5 of the DEIS under the subsection Windy Gap Diversions. Windy Gap water available for diversion is constrained by downstream senior water right calls and instream flow requirements; decree limitations; the physical supply at the diversion point; pump station and Windy Gap pipeline conveyance limitations; and available space in Granby Reservoir, the firming reservoirs, and Adams Tunnel, depending on the action alternative. The Participants' water needs are described in Section 1.7 of the DEIS. The capacities of C-BT conveyance facilities used to deliver C-BT and Windy Gap water to the Participants and the Participants' water supply systems are currently sufficient for the maximum annual Windy Gap deliveries anticipated under the No Action Alternative. For example, Broomfield's annual demand under the No Action Alternative is 5,600 AF. Broomfield took delivery of 5,600 AF in 2003; therefore, Broomfield has an existing demand for 5,600 AF, and the capacity of the C-BT system and Broomfield's water supply system is sufficient to deliver that quantity of water under the No Action Alternative. Additional information on the No Action Alternative consistent with the information requested in this comment was added to Section 3.5.2.2 of the FEIS.
59	Indeed, the DEIS attributes the additional diversions under the no action alternative strictly to Longmont's storage in Ralph Price Reservoir. *See DEIS at 3-22 and 23.* If this is the case, and the increases in Windy Gap diversions under the no action alternative are strictly attributable to enlargement of the reservoir, then Longmont's future needs would be the only needs properly modeled. The assumptions used in the model regarding such needs are not described or explained. Based on the DEIS estimates of Longmont's water demands, even under a worst case scenario, estimated future no action alternative diversions far exceed Longmont's projected Windy Gap needs. *See DEIS at 1-30 and 3-22 and 23.*	
60	If, on the other hand, the model assumes other participants' increased future diversions under the no action alternative, the assumptions used in the model remain unexplained. What portion of modeled future diversions are attributable to Longmont, and what portion to other participants? Are future diversions by Lafayette assumed, given the city's announcement that it would drop from Windy Gap if WGFP is not approved? What assumptions were made with respect to the system capacity of participants to handle the diversions? Does the model assume water plant enlargement? Does it assume increased storage?[15] What assumptions were made with respect to the timing of available supply and project participants needs? Municipal water demands can be considerably lower during wet years, which appears to be when the majority of no action alternative diversions are estimated. Does the model take into account the timing of project participants' needs, or does it assume full diversion regardless of need? If diversions are assumed regardless of need and not storage is assumed, where would participants put the water?	
	[15] Inclusion of additional storage assumptions in the model without discussion of specifics, including assumptions regarding size, location, etc., would render the no action alternative's analysis fatally flawed – particularly in light of the DEIS's lengthy discussion of the potential enlargement of Ralph Price Reservoir.	

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		59. Additional diversions under the No Action Alternative are not strictly due to Longmont's additional storage at Ralph Price Reservoir. Additional Windy Gap diversions under No Action would occur because the Participants' and nonparticipants' demands under No Action are greater than under exiting conditions and there is additional storage capacity available at Ralph Price Reservoir. The Windy Gap demands for Participants and nonparticipants under No Action are greater due to each Participants' increased water needs in the future. With a higher demand for Windy Gap water under the No Action Alternative, Windy Gap deliveries from Granby Reservoir would increase, creating additional storage space that, at times, results in additional Windy Gap diversions. This explanation was added to Section 3.5.2.5 under the subsection Windy Gap Diversions. The assumptions used in the model regarding Participants' demands for Windy Gap water under the No Action Alternative were added to Section 3.5.2.2 of the FEIS. Estimated future Windy Gap diversions under the No Action Alternative are intended for Participants, nonparticipants, and MPWCD; therefore, the increase from existing conditions cannot be compared solely to Longmont's projected Windy Gap needs as indicated in the comment (see response to Comment No. 60). 60. The Participants', nonparticipants', and MPWCD's demands under No Action are greater than under exiting conditions; therefore, future Windy Gap diversions would increase to meet those higher demands. The model parameters related to Windy Gap operations under the No Action Alternative, including Windy Gap diversions, storage, demands, and deliveries, are described in the WGFP Modeling Report Addendum (Boyle, July 2006). Additional information on these assumptions was added to Section 3.5.2.2 of the FEIS. Approximately 6,400 AF/yr of Windy Gap diversions (including diversion shrink) are attributable to Longmont, and about 37,200 AF/yr of Windy Gap diversions are attributable to the other Participants, MPWCD, and nonparticipants. Windy Gap diversions for Longmont include water diverted to Granby Reservoir and then subsequently delivered to Ralph Price Reservoir when space is available, and Windy Gap water diverted directly to Ralph Price Reservoir when Granby Reservoir is full and space exists in the Adams Tunnel. Future Windy Gap deliveries to Lafayette were not included in the No Action Alternative since Lafayette would not participate in the WGFP if it is not approved.

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		The East Slope portion of the WGFP model includes the C-BT facilities required to convey Windy Gap water to each Participants' raw water system delivery point. Each of the Participant's existing systems have the capacity to handle Windy Gap deliveries anticipated under the No Action Alternative. Water treatment plant operations and enlargements are not addressed in the WGFP model because the purpose of the model is to simulate raw water diversion, conveyance, and storage. No increased storage is included in the WGFP model for firming Windy Gap supplies except Ralph Price Reservoir. No additional firming storage is assumed because all Participants, except Longmont, do not have a currently defined storage option under the No Action Alternative. Participants would take delivery of Windy Gap water when it is available, based on their demands within the capacity of their existing water systems and delivery points under the terms of the Carriage Contract. Assumptions or constraints regarding Windy Gap water availability for diversion from the Colorado River are described in Section 3.5.2.5 of the DEIS under the subsection Windy Gap Diversions. Windy Gap water would be diverted in average and wet years based on the constraints described in Section 3.5.2.2 so that it is available for delivery in dry years, when it is needed most and Windy Gap is typically out-of-priority. Under the No Action Alternative, Windy Gap diversions would be curtailed in wet years once Granby Reservoir fills and Windy Gap supplies are spilled. Longmont can continue to divert Windy Gap water to Ralph Price Reservoir if there is space in the Adams Tunnel. If Windy Gap water is available in Granby Reservoir for delivery in wet years because Granby Reservoir has not filled or Windy Gap supplies have not spilled entirely, the model assumes it is delivered up to each Participants' No Action demand. Windy Gap diversions and deliveries in wet years would be very low and in some instances zero in back-to-back wet years like 1983 and 1984 under the No Action Alternative.

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61	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 37 of 56 In addition, the assumptions used in the model regarding availability of C-BT system capacity are not explained and appear to be inconsistently applied. First, the DEIS indicates that the model assumes continuation of existing system restrictions and repeatedly states that additional diversions under the no action alternative could be accomplished when Granby is full "as long as there is space in the Adams Tunnel . . ." *DEIS at 3-22*. Was the availability of tunnel capacity under the no action alternative modeled? Second, the DEIS's predicts that wet year diversions under the no action alternative will increase by an average of 25,400 acre-feet from existing conditions. *DEIS at 3-23*. Yet, the DEIS states that "under . . . the No Action alternative, Windy Gap diversions would be limited or curtailed in most wet years" because "there is no conveyance or storage capacity in the C-BT system for Windy Gap water when Granby Reservoir fills." DEIS at 3-14. Does this mean that the anticipated 25,400 acre-foot average diversions under the no action alternative will not take place in most years? How does this affect the no action alternative impacts on aquatic resources?	61. The capacity of C-BT conveyance facilities that are incorporated in the WGFP model are described Section 3.2.2.2 and Table 3.6 of the WGFP Modeling Report (Boyle, December 2003). C-BT Project deliveries take precedence over Windy Gap deliveries via C-BT conveyance facilities. For example, C-BT deliveries made via the Adams Tunnel (such as deliveries to Carter Lake and Horsetooth Reservoir) occur first in the model up to the capacity of the tunnel, which is 550 cfs. If C-BT deliveries are less than 550 cfs, then additional space would be available to deliver Windy Gap water to the East Slope up to a maximum total delivery of 550 cfs. Therefore, availability of tunnel capacity is modeled under the No Action Alternative. The intent of the statement "Windy Gap diversions would be limited in or curtailed in most wet years." was that Windy Gap diversions would be limited to the period prior to Granby Reservoir filling, which is why "or curtailed" was added as synonymous with limited. This statement was revised in Section 3.5.2.3 of the FEIS under the subsection Colorado River below Granby Reservoir. Additional Windy Gap diversions under No Action would occur because the Participants' and nonparticipants' demands under No Action are greater than under existing conditions, and there is additional storage capacity available at Ralph Price Reservoir. With a higher demand for Windy Gap water under the No Action Alternative, Windy Gap deliveries from Granby Reservoir prior to spilling would increase, creating additional storage space at times that results in additional Windy Gap diversions in wet years. The No Action Alternative impacts on aquatic resources consider the additional Windy Gap diversions that would occur in wet years prior to Granby Reservoir filling.
62	Finally, the DEIS indicates that the "no action" alternative modeling assumes that exchange capacity in St. Vrain is available to accomplish delivery to Ralph Price Reservoir. Has this assumption been verified? Quantified? Is it reasonable? What basis?	62. The exchange capacity of St. Vrain Creek for delivery of Windy Gap water to Ralph Price Reservoir was analyzed based on a review of USGS gage data for North St. Vrain Creek near Allens Park, which is upstream of Ralph Price Reservoir; and conversations with Longmont staff regarding inflow to Ralph Price Reservoir during the period from May through August when exchanges would likely occur. Average monthly Windy Gap exchanges upstream to Ralph Price would range from about 15 cfs in May to 60 cfs in July. Based on a review of available flow data and information from Longmont staff, the exchange potential along North St. Vrain Creek would frequently be more than sufficient to exchange Windy Gap water upstream to Ralph Price Reservoir, particularly since there are only minor diversions in the exchange reach, other than the Longmont pipeline. If exchange potential was limited in some months, Longmont's Windy Gap water could be stored in Granby Reservoir longer (space permitting) until sufficient exchange potential exists.
63	A full disclosure of the assumptions built into the "no action" alternative modeled projections is critical, first, because of the inherently speculative nature of the exercise and, second, because of the risk that using arbitrary assumptions will under-estimate the impacts of WGFP and over-estimate the effects of doing nothing. Full disclosure is also particularly important given the relatively small difference between modeled future diversions under the no action and action alternatives. That a 93,000 acre-foot, $3__ million reservoir can accomplish so very little improvement in diversions over a 13,000 acre-foot, $33 million enlargement is simply counter-intuitive, and brings into question the economic feasibility and viability of the WGFP. **4. The "no action" alternative does not provide the baseline against which WGFP impacts can be evaluated and is otherwise inconsistent with NEPA.** The purpose of requiring federal agencies to include a "no-action" alternative is to enable them to "compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo." *Custer County Action Assoc. v. Garvey*, 256 F.3d 1024, 1040 (10th Cir. 2001). For the no-action alternative, the current level of activity is used as a benchmark. *Id.*	
64	The no action alternative against which the proposed WGFP is compared does <u>not</u> reflect either the "status quo" or the "current level of activity" (i.e., water diversions in the study area today). Rather, the "no action" alternative consists of speculative guesses as to what may occur in the future, absent development of the WGFP. As discussed	

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64	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 38 of 56 above, such predictions are not only speculative, but the assumptions on which they are based remain largely unexplained and lead to counter-intuitive results. Perhaps in recognition of the speculative nature of the exercise and other shortcomings, the DEIS also compares the WGFP action alternatives to existing conditions. However, the DEIS does not reveal which predictions are being used by the agencies as the "baseline" against which WGFP impacts are compared. Without establishing a baseline, there is no way for the agencies to determine what effect the proposed action will have on the environment and, consequently, no way to comply with NEPA. *Half Moon Bay Fishermans' Mktg Ass', v. Carlucci*, 857 F.2d 505, 510 ((9th Cir. 1988). Without disclosure regarding the baseline used by the agencies, NEPA's dual goals to (1) insure that the agency has carefully and fully contemplated the environmental effects of its action, and (2) that the public has sufficient information to challenge the agency. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). Moreover, if existing conditions are being used by the agencies as the benchmark against which the action alternatives are measured, evaluation of the no action alternative appears to serve no purpose other than to artificially minimize the impacts of the Proposed WGFP, a purpose which would bring into question whether the outcome of the Proposed WGFP has already been decided. **J. The DEIS's characterization of the "unavoidable impacts" of WGFP on the aquatic resources of the Colorado River is arbitrary and capricious and fails to meet NEPA and CWA §404(b)(1) review requirements.** The DEIS describes the expected unavoidable impacts of WGFP on the aquatic resources of the Colorado River as follows: "The additional diversions under all alternatives would result in a decrease in available fish habitat in the Colorado River below Windy Gap Reservoir and Willow Creek below Willow Creek Reservoir. The greatest effect to fish habitat would occur in the reach between Windy Gap Reservoir and the Williams Fork River; however, no significant impacts to fish populations are likely. Additional Windy Gap diversions from the Colorado River are likely to result in more exceedances of the aquatic life temperature standard, primarily when diversions occur in July and August." *DEIS at p. 3-145 (emphasis added).* With respect to exceedences of temperature standards, the DEIS further concludes that "measurable impacts" to fish populations are not expected because flow reductions in July and August would be infrequent. *DEIS at p. ES-1.*	63. Additional information on the No Action assumptions was added to Section 3.5.2.2 of the FEIS; however, a more complete discussion of the No Action Alternative assumptions is provided in the WGFP Modeling Report Addendum (Boyle, July 2006). The viability of the WGFP is based on the increase in the firm yield of the Windy Gap water rights for the Participants, not the change in diversion amounts. Comparison of the cost of a firming project and the No Action Alternative should be based on the respective firm yields, not Windy Gap diversions. There is no firm yield for the Participants, other than Longmont, under the No Action Alternative, whereas the firm yield of the Participants under the Proposed Action would be about 26,000 AF. 64. See response to Comment No. 51 on rationale for the No Action Alternative. The EIS provides two reference points for comparison of impacts. Existing conditions provide a baseline to compare impacts of the alternative actions and is representative of the change from existing conditions. In addition, Reclamation NEPA policy and guidance uses a comparison of the action alternatives with the No Action Alternative because this reflects the incremental impacts of proposed actions with likely future conditions if the WGFP is not implemented. The FEIS and associated technical reports provide data for all of the alternatives comparing action and no action alternatives with existing conditions.
65	The DEIS's description fails to meet NEPA requirements, reflects unsupported, arbitrary and capricious conclusions, and is based on the DEIS's failure to take a "hard	65. The effects to aquatic resources in the FEIS were based on best available information and included a detailed analysis using IFIM modeling of aquatic habitat changes, predictions on changes in stream morphology, and water quality. The Fish and Wildlife Mitigation Plan (FEIS Appendix E) and mitigation measures summarized in Section 3.25 of the FEIS were developed to reduce identified impacts. The cumulative effects analysis likewise used the same methodology to evaluate aquatic impacts from a number of reasonably foreseeable actions, as described in Section 2.8.2 of the FEIS.

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65	look" at the potential impacts of WGFP and other reasonably foreseeable projects on the aquatic resources of the Colorado River.	
66	**1. The DEIS's unavoidable impacts description fails to meet NEPA's requirement to inform both the decision-making agencies and the public.** The DEIS describes unavoidable impacts in a cursory manner, without describing the basis for its conclusions or whether they reflect an evaluation of proposed mitigation measures. Even more troubling is the fact that, the DEIS reaches critical conclusions with respect to the "significance" of identified, unavoidable impacts, but fails to explain the basis for those conclusions. Without such description, it is impossible for the agencies' decision-makers or the public to evaluate the soundness of the conclusions or the true nature of the unavoidable impacts the project will have. This leaves the decision-makers and the public with the only option of wading through the thousands of pages of DEIS and technical reports, and the hundreds of unexplained graphs, to at best guess the basis for the preparer's conclusions. As such, the DEIS fails to meet the most basic purposes of NEPA – i.e., to inform the decision-making agencies and the public, and violates the specific requirements of CEQ regulations.	66. The discussion of unavoidable impacts has been revised for many of the resources based on additional mitigation measures described in the FEIS.
67	**2. The DEIS's determination that unavoidable impacts are not significant is arbitrary and capricious and contrary to NEPA.** NEPA regulations specify the criteria by which the "significance" of an environmental impact is to be evaluated by a federal agency. *See 40 C.F.R. § 1508.27.* The DEIS summarily concludes that identified impacts are not "significant" or "measurable," but does not conduct the required analysis in accordance with CEQ regulations. In fact, the DEIS fails to describe <u>any</u> criteria used to arrive at such significance determinations. In addition, as discussed at length in these comments, the information provided in the DEIS and associated technical reports is inadequate to support <u>any</u> conclusions regarding the significance of the impacts of WGFP and other projects on the river's aquatic resources, much less a determination that identified impacts are not significant. As such, the DEIS significance conclusions are both arbitrary and capricious and inconsistent with NEPA requirements.	67. Additional discussion was added to the FEIS to describe the context and intensity of impacts to aquatic and other resources. Where adverse impacts were identified, feasible mitigation measures were added to reduce impacts.
68	**3. The DEIS's determination that no other unavoidable impacts will result is arbitrary and capricious and contrary to NEPA.** The same lack of adequate information and analysis, as described in these comments, precludes a determination that the identified impacts are the only unavoidable impacts resulting from the project. For example, the DEIS's failure to properly analyze how the impacts of WGFP on the Colorado River hydrograph precludes the agencies from taking a "hard look" at the impacts of reducing peak flows and less-than-peak flows that serve key aquatic habitat functions, such as cleaning spawning beds. The DEIS'	68. Reclamation could not locate where the EIS makes a statement that there are "no other unavoidable impacts". The EIS was written in accordance with the CEQ regulations implementing the NEPA and provides Reclamation's best estimate, based on available information, of the anticipated effects of the proposed action. Analyses in the EIS uses accepted methods for estimating hydrologic changes. The hydrologic analysis used in the EIS provided an estimation of the likely hydrologic impacts of the alternative actions compared to existing conditions and No Action. Substantial information is provided on changes in flow duration and peak flows based on use of daily data for multiple stations and gages for a 47-year period of record. Results of the hydrologic analysis provided an baseline for evaluating the impacts to stream morphology, changes in fish habitat (using the IFIM model), impacts to habitat for macroinvertebrates, changes in water quality, and influence on whirling disease. See response to Comment No. 43 on whirling disease.

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68	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 40 of 56 inadequate analysis of macroinverterbrates and the impacts potential low flows and high stream temperatures will have on these organisms precludes a determination of whether these aquatic organisms will be impacted and, in turn, whether the fisheries will be affected by a reduction in food supply. The DEIS's failure to evaluate potential impacts of increased pumping on whirling disease and, therefore, on the survival of the trout fisheries, precludes a determination that the exacerbating effects of whirling disease are not unavoidable impacts. As a result, whether WGFP will result in other unavoidable impacts cannot be ascertained at this time and the DEIS's conclusions in this regard, arbitrary. **K. The DEIS fails to present an adequate mitigation measures analysis.** NEPA requires that mitigation measures be fully reviewed in the NEPA process. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the action-forcing function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352. CEQ regulations require that the agencies include in the EIS a discussion of appropriate measures to mitigate adverse environmental impacts. *40 CFR §1502.14(f) and 40 CFR § 1502.16(h).* Agencies must also state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. *40 CFR §1505.2(c).* Mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated. *Carmel-By-The-Sea v. Dept. of Transportation*, 123 F.3d 1142, 1154 (9th Cir. 1997). A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA. *Northwest Indian Cemetery Protective Association v. Peterson*, 795 F.2d 688, 697 (9th Cir. 1986). Broad generalizations and vague references to mitigation, which fails to specify whether any mitigation measures would in fact be adopted or to provide an estimate of their effectiveness or why such estimate is not possible, do not meet NEPA requirements. *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380-81 (9th Cir. 1998) The only two discernable mitigation measures proposed to address impacts to the aquatic resources of the Colorado River are as follows: • The Subdistrict will work with Grand County, CDOW, and others to determine if increasing bypass flows in the Colorado River from the existing minimum flow of 90 cfs to 135 cfs while Windy Gap is pumping during July and August would result in temperature reductions downstream of Windy Gap that would measurably benefit the trout fishery. If studies indicate that increased bypass flows would be effective, Subdistrict would consider increasing required flows under certain water supply conditions.	

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69	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 41 of 56 • Opportunities for improvements to aquatic lie habitat in the Colorado River and mitigation of impacts of fish will be coordinated with the CDOW, Grand County and other responsible agencies. *DEIS at ES-21.* The DEIS's description of proposed mitigation measures fails to meet NEPA's requirements. **1. The DEIS's description of mitigation measures fails to meet NEPA requirements.** First, the description of mitigation measures is vague, generally announcing an intent to study potential, as-yet-unsubmitted, mitigation ideas. Second, the DEIS fails to describe when, where or how "improvements" opportunities would be explored and implemented. Third, the DEIS completely fails to explain how these to-be-studied mitigation measures will address impacts to aquatic resources or how effective they will be in affecting such impacts. Fourth, the DEIS makes no commitment to actually implement such measures. Rather, it vaguely states that "opportunities" for habitat improvement (if any) would be coordinated, and that the Subdistrict "may consider" implementing bypass measures. Fifth, the DEIS offers no mitigation whatsoever to address impacts to Willow Creek. As such, the DEIS's mitigation measures description fails to meet NEPA requirements.	69. Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.
70	**2. The DEIS fails to support the adequacy or effectiveness of the suggested "bypass flow" to address aquatic resources impacts and omits proposed mitigation of impacts as a result of reduced fish habitat.** The DEIS's aquatic resources impacts analysis indicates that the optimum flows for adult rainbow and brown trout habitat are 500 cfs. *DEIS at 3-135.* Yet, mitigation proposed would, at most, restrict WGFP pumping to times when Colorado River flows below Windy Gap are reduced to 135 cfs and further restricts potential implementation of such restrictions to a showing of benefits to the fisheries due to stream temperature reductions. The DEIS fails to explain how such dramatic reductions below trout habitat needs would avoid or minimize impacts to aquatic resources, or the impacts of such reduced flows on these Gold Medal, Wild and Scenic Rivers Act eligible fisheries.	70. See response to Comment No. 23 regarding impacts to temperature and mitigation.
71	**3. The DEIS's suggested "bypass flow" mitigation measure is subject to conditions that are scientifically unworkable and unjustified.** Requiring proof that bypassing 135cfs "would result in temperature reductions downstream of Windy Gap that would measurably benefit the trout fishery" is scientifically unworkable. Thankfully, all trout do not die each and every time a certain stream temperature level is reached. Instead, they begin to suffer sub-lethal effects (e.g., reduced growth, reduced reproduction, as well as reduced survivorship) which increase in	71. See response to Comment No. 23 regarding impacts to temperature and mitigation.

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71	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 42 of 56 magnitude as both the severity and duration of temperature exceedences increase. If temperatures increases are high enough, all the trout will die. Indeed this is why trout are not found in warm-water streams. However, demonstrating the benefit of a specific instance in which exposure to temperatures that produce sub-lethal effects was avoided in the field is very difficult if not impossible to do. Instead, we adopt protective standards based on controlled studies and attempt to avoid exceeding the standards. **This is why the State has adopted stream temperature standards, based on extensive and well vetted studies.** Even assuming such demonstration is possible, developing the required information would be, at best, prohibitively expensive. In either case, the condition would pretty much ensure that no flow mitigation is ever done. Moreover, requiring such effort is scientifically unjustifiable. Flow is one of the critical factors determining how quickly a stretch of river warms (or cools) on a given day. Higher flows change temperature more slowly than lower flows.[16] It is unquestionable that increased bypass flows will result in smaller temperature swings throughout the day and lower average temperatures at any given location. We know that trout are negatively impacted by high daily maximums and by prolonged exposure to high temperatures. Indeed, the State went through a rigorous and protracted evaluation of the available science to determine what temperatures would be protective of trout. Requiring that the avoidance of a given temperature exceedences be correlated with a measurable benefit for the trout fishery is recreating the wheel. We know that temperature exceedences harm trout. This is why temperature standards were adopted. A demonstration of the specific benefit of any avoided temperature exceedences in these specific reaches of the river is not needed. The DEIS's proposed mitigation is vague, unsupported, and imposes conditions that are unnecessary and virtually impossible to meet. Accordingly, the DEIS's mitigation analysis is fatally flawed. [16] There are two reasons for this and they both come back to mass. The greater the volume of water that is being heated, the more energy it needs to absorb or release to change temperature. This is essentially the first law of thermodynamics: "the increase in internal energy of a system is equal to the amount of energy added by heating the system, minus the amount lost as a result of the work done by the system". When discharges are higher, there is more water in the river that needs to be heated (or cooled) for any given swing in temperature. Because velocity is also related to discharge in that the average water velocity of a river increases with increasing discharge, the turnover time of the river is also greater. This means that water in a river reach is replaced more frequently when discharge is high than when it is low. This, too, contributes to the total amount of water than needs to be heated to produce a swing in temperature. Another way to think about this is that all else being equal, when water velocity is high a slug of water travels further downstream before it absorbs enough heat to produce a given increase in temperature. Since much Colorado River Water begins as snowmelt at 0 ºF this means that when velocity is high, water travels further before it is heated to temperatures that are stressful for trout.	

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72	**L. The DEIS fails to comply with NEPA requirements and agency guidance requiring evaluation of consistency with Federal, State, regional or local laws.** NEPA regulations require federal agencies to identify and evaluate possible conflicts between the proposed action and federal, regional, State and local laws. *See 40 CFR §§ 1502.16(c) and 1506.2(d).* Where an inconsistency between the proposed action and State and local laws exists, the regulations require the agencies to describe "the extent to which the agency would reconcile its proposed action with the plan or law." *40 CFR § 1506.2(d).* In addition, Reclamation and the Corps operate under specific guidance for compliance with NEPA regulations. *See Reclamation's Environmental and Planning Coordination Office, D-5100; 33 CFR Part 320 and 325 (Corps).* The DEIS fails to meet NEPA requirements and guidance as set forth in CEQ regulations and the agencies' respective guidance and regulations.	72. See response to Comment Nos. 73 to 75.
73	First, the DEIS lists "[p]rincipal federal, state and local environmental compliance requirements associated with implementation of [WGFP]." *DEIS at 1-43; see DEIS, Table 1-7 at 1-44 to 1-46; see also DEIS at 3-130 (specific to aquatic resources and recreational fisheries).* However, while summarily listing such requirements, the DEIS fails to evaluate whether approval of WGFP would conflict with these requirements or how, if such conflict exists, the agencies propose to reconcile approval of WGFP with such requirements. Based on the information provided by the DEIS, and as discussed in these comments, it is clear that, at a minimum, approval of WGFP would conflict with State law establishing stream temperature Standards for the protection of cold water biota. The DEIS could also conflict with Colorado's management of fisheries within the affected segments as Gold Medal and/or Wild trout fisheries, the goals of the Fish and Wildlife Coordination Act, and Executive Order 12962 (established to "conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities nationwide."). The DEIS does not discuss how the agencies propose to reconcile approval of WGFP with such conflicts.	73. Mitigation measures for aquatic resources are described in Sections 3.8.4 and 3.9.4 of the FEIS. There would be no conflict with management of Gold Medal waters, as described in response to Comment No. 50. A Fish and Wildlife Mitigation Plan (FEIS Appendix E) was developed for the project in accordance with CRS 37-60-122.2. The Fish and Wildlife Mitigation Plan will be incorporated in the Fish and Wildlife Coordination Act report.
74	Second, the DEIS fails to identify State water laws as a requirement with which approval of WGFP must comply. Colorado water laws establish a system to administer and protect the water rights of its citizens, including instream flow water rights held by the CWCB for "protection of the natural environment to a reasonable decree." [CITE]. As further discussed in Section III of these comments, approval of WGFP absent a change of water rights by a Colorado water court would violate the State's water right laws. Yet, the DEIS neither identifies nor addresses potential conflicts with such laws.	74. In 2006, Reclamation consulted with the Colorado State Engineer to determine if the alternatives being considered in the Preliminary draft EIS could be administered, without change, or what changes would be required to implement the alternatives. The State Engineer considered to proposed operation of the proposed operation and determined that an east slope reservoir with prepositioning may be administered in compliance with current water right decrees and within the priority system. Alternatives requiring a West Slope reservoir would require a change in the Windy Gap water rights. Reclamation is relying on this opinion from the State Engineer in determining that there are no conflicts with Colorado water rights law. Additionally, Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS. Also see response to Comment Nos. 89 and 90.
75	Finally, the DEIS improperly restricts the requirement for compliance with Grand County's 1041 regulations to actions that require construction of reservoirs in the west slope. *See DEIS, Table 1-7, at 1-46.* Trout Unlimited refers to Grand County's comments in this regard.	

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76	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 44 of 56 The DEIS fails to identify and evaluate potential conflicts with Federal, State and local laws as required by CEQ regulations and agency guidance. Accordingly, the DEIS fails to meet NEPA requirements.	75. The EIS acknowledges that a 1041 permit may be required but takes no position on the need for a 1041 Permit for the Preferred Alternative. Resolution of this issue is not required for completion of the NEPA process or issuance of a Record of Decision. Additional discussion on this issue was added to Section 1.10.3 of the FEIS. Grand County and the Subdistrict disagree on the need for a new or modification of the existing Windy Gap 1041 Permit for the Preferred Alternative, which includes no new facilities in Grand County.
77	**II. THE DEIS FAILS TO PROVIDE INFORMATION NECESSARY FOR THE AGENCIES' EVALUATION OF COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS.** Before the agencies decide on a course of action regarding the proposed WGFP, they must evaluate whether their actions will comply with Federal, State and local laws and they must consult with the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to aquatic resources.[17] The information provided in the DEIS is inadequate to enable the agencies' determination in this regard. The DEIS is also inadequate to enable the U.S. Fish and Wildlife Service to provide recommendations under the Federal Wildlife Coordination Act (FWCA) or for the State of Colorado to issue a certification under CWA § 401. Accordingly, Reclamation and the Corps should stay any decision with respect to WGFP until such time as a supplemental EIS providing the required information is prepared.	76. Table 1-7 in the FEIS lists potential compliance requirements needed for the WGFP. In addition, Chapter 3 of the FEIS indicates applicable Regulatory Framework for resources. Some of these regulatory requirements are met as part of the NEPA process, while others would need to be addressed by the applicant at a later date. The USFWS was consulted with regarding the Fish and Wildlife Coordination Act and the Endangered Species Act. The 404/401 permitting process is running parallel with NEPA compliance. A supplemental EIS is not needed to meet permitting and consultation requirements.
78	**A. The DEIS fails to provide information necessary for Reclamation's evaluation of compliance with Senate Document 80 and other Reclamation laws and policies.** Senate Document 80 (SD 80) imposes upon Reclamation an affirmative duty to protect the Colorado River's fisheries.[18] It provides that the project must be operated "to most nearly effect" the C-BT Project's primary purposes. SD 80 specifically identifies preservation of the Colorado River's fisheries as one of those purposes. *SD 80 at pp. 2.* SD 80 further stipulates that the project shall be operated so as to "insure an adequate supply for irrigation, for sanitary purposes, for the preservation of scenic attractions, **and for the preservation of fish life**." *SD 80 at p. 5 (emphasis added).*	77. Reclamation completed consultation with the Fish and Wildlife Service on the effects of the proposed action on the Colorado River endangered fish. The U.S. Fish and Wildlife Service issued a biological opinion on February 12, 2010 for the Preferred Alternative (FEIS Appendix D). The biological opinion determined that the original Windy Gap Project meets the criteria for coverage under the PBO because a Recovery Agreement was signed by the Subdistrict in March of 2000 and the depletions existed when the Recovery Program was initiated. Additionally, discussions with the FWS indicate that the FWS will adopt the Fish and Wildlife Mitigation Plan as part of the compliance with the Fish and Wildlife Coordination Act.
	[17] The DEIS acknowledges the agencies' obligation to make consistency determinations with respect to other laws, but states that such determination "is not part" of the DEIS. *DEIS at 1-42.* Accordingly, these comments are not intended to provide a comprehensive analysis in this regard. Rather, they are intended to provide initial input with respect to the sufficiency of the information and analysis provided in the DEIS to enable such decisions. Trout Unlimited will provide comprehensive comments regarding the consistency and legality of Reclamation's proposed contractual actions upon notice, as required by Federal regulations and Reclamation's policy. *See e.g., 43 CFR § 426.22; Reclamation Manual, PEC P06 (Oct. 3, 2006) and WTR 04-01(Nov. 11, 2000).* **Trout Unlimited again requests to be directly notified with respect to any proposed contract action by Reclamation in connection with WGFP.** [18] Senate Document 80 is the legal foundation of the C-BT Project. The Project was authorized by the Appropriations Act of August 9, 1937, 50 Stat. 564, 595, which requires that the project be built and operated in accordance with Senate Document 80.	78. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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78	Enabling projects such as WGFP is <u>not</u> a primary, secondary, or tertiary purpose of the project. Indeed, enabling such projects is not a purpose of the C-BT Project at all. At most, reclamation's approval of the WGFP carriage contract would be a voluntary Reclamation action "to assist in improving the management of the West's water resources." *See Reclamation Manual, WRP P04 (Jan. 10, 2001).* Assuming that using C-BT Project facilities and water for such purpose is allowable under SD 80, an assumption that as further discussed Section III remains in question, if operation of WGFP results in negative impacts to the river's fisheries or recreation resources, Reclamation must either impose conditions that will protect the river's resources or it must deny use of C-BT Project facilities and water to accomplish WGFP purposes.[19] The information provided by the DEIS is insufficient to support Reclamation's decision in this regard.	
79	First, the DEIS fails to evaluate the impacts the C-BT Project is already having on the Colorado River fisheries. Rather, the DEIS simply assumes that past impacts are reflected in existing conditions. While in philosophical sense this may be true, as discussed in detail in Section I of these comments, such analysis is insufficient to understand the extent to which the Colorado River fisheries have been compromised by past operations, including C-BT Project operations and, therefore, the extent to which additional diversions by WGFP may push the river system over the brink, causing significant degradation, or even the total collapse of these valuable fisheries.[20]	79. See response to Comment No. 12.
80	Second, the DEIS fails to assess the true impacts of WGFP on the Colorado River's aquatic resources and recreational values. As discussed at length in Section I of these comments, the DEIS fails to evaluate the most likely and damaging impacts of the project and arbitrarily dismisses impacts that are identified – including anticipated	80. Aquatic resource effects were evaluated and identified in the FEIS. Mitigation measures for effects on aquatic resources are included in the Fish and Wildlife Mitigation Plan (FEIS Appendix E) and have been incorporated into the FEIS as summarized in Section 3.25.
	[19] Reclamation's failure to do so would not only violate SD 80, but also the Warren Act and Reclamation's policy implementing it. See *e.g., Reclamation Manual, WRP P04 (Jan. 10, 2001);* and *Principles Governing Voluntary Water Transactions That Involve or Affect Facilities Owned or Operated by the Department of the Interior (Dec. 16, 1988) (1988 Principles).* See discussion in Part III of these comments, below. [20] The DEIS makes passing reference to the "Principles to Govern the Release of Water at Granby Reservoir Dam to provide Fishery Flows immediately downstream ." (Principles). While these principles may have at one time been intended to provide flow protection downstream of Granby Reservoir, more recent information, including information provided by the Grand County Stream Flow Management Plan and even information presented in the DEIS, shows that those flows are insufficient for the purpose. Moreover, available information also indicates that the flows established in 1961 are inconsistent with the recommendations made by the USFWS. *See Fish and Wildlife Service and Bureau of Reclamation Joint Report Concerning Fishery Flows below Granby and Willow Creek Dams, Colorado Big Thompson Project.*	

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80	violations of stream temperature standards adopted by the State of Colorado for the projection of aquatic life.	
81	Third, the DEIS fails to propose firm mitigation measures, or to evaluate the extent to which mitigation measures that may be evaluated in the future will protect the fisheries.	81. See response to Comment No. 80.
82	Reclamation's first duty is to operate the C-BT Project in a manner that meets the primary purposes identified in SD 80, including the primary purpose of preserving the fisheries and recreation opportunities of the Colorado River. Even if such duty allows room for Reclamation's facilitation of projects like WGFP, Reclamation may not do so at the expense of fulfilling its primary obligations under SD 80. The DEIS fails to provide information necessary to enable Reclamation's determination in this regard. Accordingly, Reclamation may not approve WGFP until such time as adequate information is developed or strict conditions that will ensure that the river's fisheries and recreation opportunities will not be harmed are developed.	82. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
83	**B. The DEIS fails to provide information needed to enable the Agencies compliance with the Federal Wildlife Coordination Act.** The Federal Wildlife and Coordination Act (FWCA) requires federal agencies to consult with the USFWS and the State's fish and wildlife agencies when evaluating approval of projects that will impound, divert, or otherwise modify a stream or other water body. *16 U.S.C § 662(a).* The purpose of this requirement is to ensure that "wildlife conservation shall receive equal consideration with other features in the planning of Federal water resource development programs . . . putting fish and wildlife on the basis of equality with flood control, irrigation, navigation, and hydroelectric power in our water resource programs. . ." *S.Rep. No. 1981, 85th Cong.2d Sess. (July 28, 1958). 1958 U.S.Code Cong. & Admin.News, pp. 3446, 3448, 3450.1958 U.S.Code Cong. & Admin.News, at 3450.* Consultation with the fish and wildlife agencies must occur before the agencies make decisions. *See, e.g. Zabel v. Tabb*, 430 F.2d 199 (5th Cir. 1970), and their recommendations must be given proper consideration and weight. *See e.g., Sierra Club v. Alexander,* 484 F. Supp. 455, 470 (N.D.N.Y. 1980). To enable consultation, federal agencies must give the fish and wildlife agencies a meaningful opportunity to comment. *Sierra Club v. U.S. Army Corps of Engineers, 935 F. Supp. 1556, 1580 (S.D. Ala. 1996).* The DEIS provides sufficient information to warrant a determination by the USFWS and the Colorado Division of Wildlife that the proposed WGFP will have unacceptable impacts to aquatic resources – in particular, given the acknowledged violation of State stream temperature standards. However, for the reasons summarized in Part B, above, and described in detail in Section I of these comments, the DEIS fails to	83. See response to Comment No. 77.

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83	provide adequate information to understand the full impacts of the project or from which recommended mitigation can be developed. Accordingly, the agencies have failed to provide a meaningful opportunity for the WSFWS and the Colorado Division of Wildlife's comments, in violation of the FWCA.	
84	**C. The DEIS fails to provide information needed to enable the Agencies to evaluate compliance with Executive Order 12962.** Executive Order 12962 (EO 12962), issued on June 7, 1995, requires federal agencies to take actions designed to improve aquatic resources to provide increased recreational fishing opportunities. In this regard, EO 12962 provides, in pertinent part: Federal agencies shall, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by . . . *b)* identifying recreational fishing opportunities that are limited by water quality and habitat degradation and promoting restoration to support viable, healthy, and, where feasible, self-sustaining recreational fisheries; *c)* fostering sound aquatic conservation and restoration endeavors to benefit recreational fisheries . . . *f)* implementing laws under their purview in a manner that will conserve, restore, and enhance aquatic systems that support recreational fisheries . . . *h)* evaluating the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order. *EO 12962, § 1.* The order further creates a National Recreational Fisheries Coordination Council, of which the Department of the Interior, the Department of Defense and EPA are members. The council is directed to, among other things, "ensure that the social and economic values of healthy aquatic systems that support recreational fisheries are considered by Federal agencies in the course of their actions." *EO 12962, § 2(a).* Not only does the DEIS fail to evaluate the extent to which approval of WGFP will further and not conflict with the directives of EO 12962, for the reasons summarized in Part B, above, and discussed in detail in Section I of these comments, the DEIS fails to supply the information needed for the agencies evaluation of consistency with EO 12962.	84. Section 1(h) of EO 12962 requires agencies to evaluate, " the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order;" The FEIS evaluates and documents the anticipated effects of the proposed action on aquatic systems and recreational fisheries.
85	**D. The DEIS fails to provide information needed for the State of Colorado's determination of compliance with CWA § 401.** Section 401 of the Clean Water Act requires § 404 permit applicants to provide a State certification of compliance with state water quality standards. *See 33 USC § 1341(a).*	85. The impacts of the WGFP are evaluated during the periods when the Project could make an impact. See the Fish and Wildlife Mitigation Plan (FEIS Appendix E) and Section 3.8.4 of the FEIS for a discussion regarding mitigation for temperature impacts.

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85	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 48 of 56 In spite of its inadequacies, the DEIS already establishes that operation of WGFP will violate stream temperature standards established by the State of Colorado for the protection of cold water biota. As described in Section I of these comments, these acknowledged violations may only reflect the "tip of the iceberg" with respect to the extent to which operation of WGFP may aggravate stream temperature problems. Due to inadequacies of the model and analysis, the DEIS fails to evaluate the full extent to which operation of WGFP, combined with past, present and future reasonably anticipated projects, will cause violations of the State Standards. The DEIS further fails to propose firm mitigation measures that will prevent either acknowledged or as yet undetermined violations of these State Standards. As a result, the information provided by the DEIS is insufficient to enable the State to do anything other than to deny CWA § 401 certification.	
86	**5. The DEIS fails to provide information needed for the Corps' determination regarding compliance with CWA § 404.** Trout Unlimited's comments in this regard are incorporated in its comments to the Corp's proposed CWA § 404, attached to these comments as Attachment __ .	86. As a cooperating agency, the Corps has participated in the preparation and review of the DEIS and FEIS, and has sufficient information for a decision on a 404 Permit. This decision is not required as part of the NEPA process and the Corps can request additional information from Reclamation or the applicant, as needed. The Corps will use information in the FEIS to develop their own Record of Decision on the 404 permit application.
	III. THE WGFP ACTION ALTERNATIVE, AS PROPOSED, WOULD VIOLATE FEDERAL AND STATE LAW.[21] NEPA requires consideration of *reasonable* alternatives. *Utahans for Better Transportation v. U.S. Department of Transportation*, 305 F.3d 1152, 1172 (10th Cir. 2002). An illegal or unauthorized alternative cannot be considered reasonable. *Utah v. Norton, 2006 WL 11798 (slip opinion).* The Proposed WGFP Action alternative, as proposed, would violate Federal and State law.	
87	**A. Reclamation laws.** **1. Use of C-BT Project Facilities.** The Warren Act provides Reclamation's general authority to enter into contracts allowing the use of Reclamation project facilities for storage and conveyance of non-project water (excess capacity contracts), subject to strict requirements designed to protect the beneficiaries of the Reclamation project. The proposed WGFP carriage contract would be an excess capacity contract.	87. Reclamation does not consider the Warren Act as authority to enter into the contract to implement the proposed action. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.
	[21] Trout Unlimited's comments are not intended to provide comprehensive input as to the legality of the agencies' action in this regard. Rather, they are intended to provide input regarding the legality of the proposed alternative in the context of the NEPA analysis. Comprehensive comments will be provided by Trout Unlimited upon notification of agency action.	

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87	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 49 of 56 In 1985, an investigation of practices approving excess capacity contracts under the Warren Act revealed that many such contracts could not be administered under the Act.[22] As a result, Reclamation developed a number of policies addressing the conditions under which Reclamation would approve excess capacity contracts. *See, e.g. 1988 Principles; Reclamation Manual, Policy WTR-P04 (Jan. 10, 2001); Reclamation Manual, Policy WTR P03 (Jan. 10, 2001).* The Policies apply to amendments and extensions of previous excess capacity contracts as well as to new contracts. These policies prohibit Reclamation from entering into excess capacity contracts unless specific conditions are met. They include, but are not limited to, the following provisions: • "Excess capacity will be made available only for the storage and conveyance of non-project water to be used for irrigation, except in the case of the projects identified in section 305 of the Drought Relief Act or in other project-specific legislation." *Policy WTR-P04 at p. 3.* According to the Policy, this limitation is imposed by the Warren Act. *Policy WTR-P04 at p. 3, n. 2.* • "Reclamation will not allow the use of Reclamation project facilities for the storage and conveyance of nonproject water unless excess capacity exists and project operations and Reclamation's contractual obligations to its project contractors, O&M contractors, or others can and will be protected." *Policy WTR-P04 at p. 3.* • "The storage and conveyance of non-project water will be allowed only if this will not impair Reclamation's ability to protect the water rights for and the yield of its projects and to meet its statutory or regulatory obligations." *Id.* • "Reclamation will not enter into contracts for the use of excess capacity unless and until the requirements of contracts applicable to project service from the facilities involved, of Federal reclamation law (including, but not limited to, the requirements, restrictions, and limitations of the Warren Act and, if applicable, section 305 of the Drought Relief Act), and of all other applicable Federal laws (including, but not limited to, NEPA and the Endangered Species Act) are met." *Id. at p. 4.* • Reclamation may enter into excess capacity contracts only when doing so can be accomplished without diminution of services to those parties being served by the [22] *See Memorandum from Keith Eastin, Associate Solicitor, Division of Energy and Natural Resources, Dept. of Interior, to Commissioner, Regarding Application of Reclamation Reform Act of 1982 to Contracts Executed Pursuant to the Warren Act of 1911, at 7 (Aug. 28, 1985).*	

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87 88	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 50 of 56 project and there are no third-party consequences, those consequences are addressed in appropriate forums, or the consequences will be mitigated to the satisfaction of the affected parties. *1988 Principles, §§ 2 and 3.* • "Primacy in water allocation and management decisions rests principally with the States. Voluntary water transactions under this policy must be in accordance with applicable State and Federal laws." *1988 Principles, § 1.* **2. Use of C-BT Project Water.** Neither the Warren Act nor these policies authorize the use of project water for non-project purposes. With respect to the use of project water for non-project purposes, Reclamation has adopted a specific policy, which states: "Effective immediately, no new contracts for the sale or use of project water or surplus project water from a Reclamation project shall be entered into based upon the Warren Act of 1911 (43 U.S.C. 523-525). Rather, all future contracts for the sale or use of project water or surplus project water shall be entered into based upon the Reclamation Project Act of 1939 and/or other applicable authorities." *Reclamation Manual, WTR P03 (January 10, 2001).* Indeed, the DEIS indicates that Reclamation will evaluate the extent to which using C-BT Project water for non-project purposes will meet the requirements of § 14 of the Reclamation Project Act of 1939. *See DEIS at 1-43.* However, it is unclear whether such Act applies to these circumstances and, if so, whether use of C-BT Project water for WGFP purposes is "necessary and in the interests of the United States and the project," as required by the act - particularly in light of the potential impacts such use will have on the primary purposes of the C-BT Project, as stated in SD 80. In addition, the storage facilities where C-BT Project water is to be stored are specifically identified in SD 80 and the Blue River decree, the water rights decree under which the C-BT Project operates consistent with State water law. Neither SD 80 nor the Blue River decree authorizes storage of C-BT Project water in non-project facilities, such as the proposed Chimney Hollow Reservoir. Whether storage of C-BT Project water can be accomplished consistent with SD 80 restrictions is questionable. As further discussed in Part B, below, storage of C-BT Project water in a new reservoir, absent a change of water right duly decreed by the court, would most certainly violate State water law. Moreover, as further described in Part B, below, major modifications to Granby Reservoir may be needed to ensure that implementation of the Proposed Alternative will not illegally expand C-BT Project diversions. Such changes, as well as storage of C-BT	88. See response to Comment No. 87.

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88	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 51 of 56 Project water in an unauthorized facility, appear to constitute "major changes" requiring Congressional approval under the Reservation Projects Act. *43 U.S.C. § 390b(d).* Serious questions remain as to the legality of the Proposed WGFP Action, as currently proposed. Accordingly, before the agencies proceed, they must take a close look as to whether the Proposed Action alternative is legal and, therefore, meets NEPA requirements. In accordance with NEPA, such review must be made available for public review. **B. Colorado water law.** **1. Absent a change of water rights decree, Reclamation's storage of C-BT Project water in Chimney Hollow Reservoir would violate Colorado water law.**	
89	The WGFP Proposed Action alternative relies on temporary storage of C-BT Project water in the new Chimney Hollow Reservoir – a concept described in the DEIS as "prepositioning." Reclamation would store C-BT Project Water in the new, proposed Chimney Hollow Reservoir, thus creating space in Granby for storage of Windy Gap water when in priority. Storage of C-BT Project water in Chimney Hollow reservoir is not authorized under the Blue River decree, the court decree authorizing diversion and storage of C-BT Project water under its senior, 1937 priority.[23] Under Colorado law, the owner of a decreed water right has the right to change the place where decreed water will be stored, or to add places of storage. *See Trail's End Ranch v. Colorado Division of Water Resources,* 91 P.3d 1058, 1061 (Colo. 2004); *C.R.S. § 37-92-103(5).* However, to do so, the owner must obtain a decree from the water court approving the change of water rights. *Trail's End Ranch*, 91 P.3d at 1061; *Empire Lodge Homeowners' Ass'n v. Moyer,* 39 P.3d 1139 (Colo. 2001); *Farmers Reservoir and Irr. Co. v. City of Golden,* 44 P.3d 241, 246 (Colo. 2002). The purpose of the requirement is to ensure that the change in the use of the decreed water right will not result in injury to the water rights of others.[24] [23] *See Final Decree for Consolidated Civil Case Nos. 2782, 5016 and 5017, in the U.S. District Court for the District of Colorado. While water right decrees in Colorado are usually adjudicated in State water courts, as the decree explains, the Blue River decree was issued by Federal district court because the case was removed by the United States from state court. However, in ruling on the matter, the federal court must use and is bound by Colorado water law.* [24] As further discussed below, Trout Unlimited is particularly concerned with the injury the proposed change of C-BT Project water rights will have on the instream flow water rights held by the CWCB, in trust, for the people of the State of Colorado, to preserve the natural environment to a reasonable decree. For example, the CWCB instream flow rights are junior to the C-BT Project water rights. Accordingly, to the extent the change in water rights increases C-BT Project diversions beyond what is legally allowed under the Blue River decree, the CWCB's junior instream flow rights will be injured.	89. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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89	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 52 of 56 *Empire Lodge Homeowners' Ass'n,* 39 P.3d 1158; *Farmers Reservoir and Irr. Co. v. City of Golden,* 44 P.3d at 246. The requirement is mandatory, not discretionary. *Id.* Accordingly, unless Reclamation obtains a decree amending the Blue River decree to authorize storage of C-BT Project water in Chimney Hollow reservoir, storage of C-BT Project water in that reservoir would be illegal under State law. The DEIS indicates that the Colorado State Engineer "indicated that the Proposed Action to deliver and store water in Chimney Hollow Reservoir using prepositioning could be administered in compliance with current water right decrees and within the priority system." *DEIS at 3-7 (citing January 17, 2007 personal communication between then State Engineer Simpson, H.D. and Fred Ore, DEIS at 5-12).* However, Colorado water law is crystal clear in that the Colorado State Engineer does not have the authority to make this type of determination. Only the water court does. *See e.g., Empire Lodge Homeowners' Ass'n,* 39 P.3d at 1147; *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003).[25] The DEIS further indicates that to "prevent the C-BT Project from storing more water in Granby Reservoir than it could without prepositioning," C-BT would stop storing water at Granby Reservoir when "the total C-BT contents in Granby and Chimney Hollow combined reaches 539,568 AF, which is the physical capacity of Granby Reservoir." *DEIS a 3-24.* Presumably, this limitation would prevent expansion of the C-BT Project water rights to the injury of others. However, even if Reclamation were to incorporate such limitation in its carriage (excess capacity) contract, Reclamation would be violating Colorado water law unless it obtains the mandatory change of water rights decree from water court. Far from a mere formality, the requirement of water court approval of changes of water rights "provides and important protection for potentially affected decree water rights holders." *Trail's End Ranch,* 91 P.3d at 1063. "They are designed to provide notice and the opportunity for potentially affected decreed water rights holders to participate in proceedings in order to protect their rights." *Empire Lodge Homeowners' Ass'n,* 39 P.3d at 1158. Reclamation may not substitute its authority for the authority of the water court, granted by the State of Colorado, and having primacy over federal law. Moreover, the proposed restriction is ineffective in protecting water rights held by others from injury caused by the proposed prepositioning. First, the suggested volumetric limits would allow diversion of C-BT Project water in excess of what is authorized in the Blue River decree. Under the Blue River decree, Granby Reservoir's total storage [25] Nor does the fact that C-BT Project water would be stored in a reservoir located in a different basin from where the water is diverted changes the strict, mandatory requirement to obtain a change decree imposed by Colorado water law. *See e.g., Twin Lakes Reservoir and Canal Co. v. Aspen,* 596 P.2d 45 (Colo. 1977); *Cities of Aurora and Colorado Springs v. Division 5 Engineer*, 799 P. 2d 33 (Colo. 1990).	

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89	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 53 of 56 capacity is 543,758 acre-feet. However, only 469,568 acre-feet are active storage. By storing water in an additional, undecreed reservoir, and restricting storage to 539,568 AF, the Proposed Action alternative may illegally expand existing C-BT Project water rights.[26] In fact, to the extent the proposed limit permits increases in Granby's current operational capacity, prepositioning would illegally expand such water rights and potentially injure the water rights of others. Second, the suggested volumetric limits could allow an expansion of the historical diversions associated with the C-BT Project. To the extent storage in Chimney Hollow Reservoir allow an increase of C-BT Project diversions beyond that which has occurred historically, such expansion of historical use would violate Colorado water law. *See Santa Fe Trail Ranches Prop. Owners Ass'n,* 44 P.3d 46 (Colo. 1999). To the extent such expansion in the historic diversions injures the water rights of others, including the CWCB's instream flow rights (e.g., by reducing the amount of Colorado River water available, in priority, to other water rights), such would also violate Colorado water law. *Id.* Third, by storing C-BT Project water in Chimney Hollow reservoir and, then, "exchanging" it for Windy Gap water when the latter is available in priority, prepositioning would increase the length and frequency with which Windy Gap water rights can divert from what has occurred historically. Indeed this is one of the very goals of prepositioning. In doing so, WGFP would improperly expand the existing, decreed Windy Gap water rights, potentially injurying water rights that are junior to the C-BT Project water rights, but senior to the Windy Gap decreed water rights (such as the CWCB's instream flow rights). Fourth, the suggested storage limitation is worthless unless it can be enforced – e.g., unless storage in Granby Reservoir can be prevented once the sum of water stored in Granby and in Chimney Hollow exceeds the proposed volumetric limits. The proposed combined storage limitation would create a "paper fill" situation, whereby room for storage will be physically available in Granby even after it is declared officially "full" as a result of implementation of the proposed limitation. If Granby is in this condition into the runoff season, Granby will continue to physically fill, whether it is entitled to or not. Unless the physical means are available to release flows into the Colorado River in excess of what the "paper fill" entitles C-BT to store, the proposed limitations will not be physically enforceable and the downstream water rights, including the CWCB's instream flow water rights, will be illegally injured. There seems to be some indication that the outlet works for Granby may not be sufficient to handle the release of excess, out of [26] In fact, the Blue River decree's identified storage capacity for Granby Reservoir is inconsistent with the lesser capacity identified in SD 80. Yet, the Blue River decree purports to give effect to and, in fact, incorporates the "manner of operation" (including structure capacity descriptions) set forth in SD 80 by reference. This potential inconsistency would have to be resolved by the court upon consideration of a change of water rights decree.	

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89	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 54 of 56 priority, storage water – which during runoff has been as high as 3,000 cfs. Reclamation must closely look at Granby's spill and outlet release capabilities. If the capabilities are not there, the proposed limits could not be implemented and injury to vested water rights could result, in violation of Colorado water law. Reclamation law and policy requires operation of Reclamation projects in strict compliance with State water laws. Moreover, Reclamation law and policy specifically prohibits Reclamation from entering into excess capacity contracts unless such contracts can be carried out in accordance with State water laws. *See, e.g. Warren Act; 1988 Principles; Reclamation Manual, Policy WTR-P04 (Jan. 10, 2001); Reclamation Manual, Policy WTR P03 (Jan. 10, 2001).* Thus, Reclamation may not approve the Proposed WGFP unless obtains a decree amending the Blue River decree, which decree imposes conditions to prevent injury to the water rights of others and ensures that the proposed change of water rights otherwise complies with Colorado water law. As proposed, the WGFP Action alternative, which includes prepositioning, does not require Reclamation's application for a change of the Blue River decree. Accordingly, the Proposed Action alternative is illegal, in violation of Colorado water law.	
90	**2. Absent a change of water rights decree, storage of Windy Gap water in Chimney Hollow or the other action alternative reservoirs would violate Colorado water law.** Diversion of Windy Gap Project water rights is authorized pursuant to a decrees issued by Colorado water court (Windy Gap decrees).[27] The Windy Gap decrees do not allow storage of Windy Gap water anywhere except in Windy Gap reservoir (in the amount of 1546.14 acre-feet) and in Jasper Reservoir (in the amount 11,292.58 acre feet). All WGFP action alternatives provide for storage of up to 93,000 acre-feet in reservoirs that are neither identified nor decreed in the Windy Gap decrees. Only alternative 3 includes a decreed storage reservoir, Jasper Reservoir, but in amounts that far exceed the decreed amount. Thus, for the reasons discussed above, in the absence of a change of the Windy Gap water rights, the WGFP action alternatives identified in the DEIS would violate Colorado water law. It should be noted, in this regard, that while the Windy Gap decrees authorize in priority diversions of large direct flow rights, under Colorado water law, a direct flow water right cannot be stored, absent a decree authorizing such storage. *See e.g., New Loveland & Greeley Irr. & Land Co. v. Consolidated Home-Supply Ditch & Res. Co.,* 62 P. 366 (Colo. 1900); *Board of Arapahoe County Comm'rs v. Upper Gunnison River Water Conservancy Dist.*, 838 P. 2d 840, 852 (Colo. 1992). This is the case even if the same structure diverting the direct flow rights is used to fill the reservoir. *New Loveland & Greeley Irr. & Land Co.* at 368. Moreover, the fact that water is diverted from the [27] *See Civil Action No. 1768, Grand County District Court; W-4001, District Court, Water Division 5, and 80CW108, District Court, Water Division 5.*	90. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion of text added at the beginning of Section 1.10.2 of the FEIS.

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90	Trout Unlimited Commments Draft Environmental Impact Statement Windy Gap Firming Project December 29, 2008 Page 55 of 56 basin of origin for storage in a different basin does not change the need, under Colorado law, to obtain a decree authorizing such storage and including terms and conditions to prevent injury to the water rights in the basin of origin. *See e.g., Twin Lakes Reservoir and Canal Co. v. Aspen,* 596 P.2d 45 (Colo. 1977); *Cities of Aurora and Colorado Springs v. Division 5 Engineer*, 799 P. 2d 33 (Colo. 1990). Because they contemplate storage of Windy Gap water under the Windy Gap decrees, and such decrees do not authorize storage in location and/or amounts identified in the decrees, the WGFP action alternatives are illegal unless a change of water rights decree is obtained in accordance with Colorado water law. **CONCLUSION** For the reasons described in detail in this letter, Trout Unlimited believes that the WGFP may not be approved until such time as the agencies prepare a supplemental EIS which resolves the problems raised, and an adequate opportunity for public comment is provided as required by NEPA. Thank you for the opportunity to comment.	

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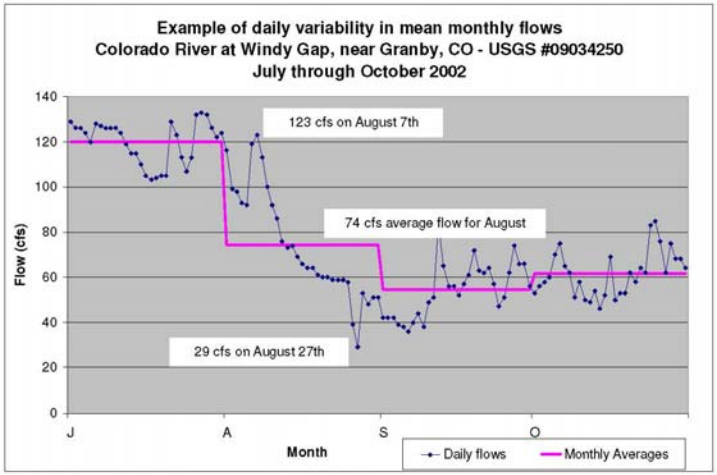
Figure 1. Daily flows vs. mean monthly flows
(USGS Colorado River at Windy Gap, near Granby, CO gage - #09034250)



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December 29, 2008

Western Resource Advocates (WRA) is pleased to offer these comments on the Draft Environmental Impact Statement (DEIS) prepared by the U.S. Bureau of Reclamation (BOR or Bureau) and the associated § 404 Permit Application to the U.S. Army Corps of Engineers on the proposed Windy Gap Firming Project (WGFP).

WRA—with members and offices in several western states—is a regional non-profit organization working to find sustainable solutions to meeting human needs while also protecting the environment, the economy it supports, and western quality of life. Specific to water resources in Colorado, WRA promotes sound water management and advocates for environmentally and economically sustainable decisions that conserve, protect, and restore Colorado's rivers. These comments were generated by a team of WRA staff who, collectively, has dozens of years of experience on water issues.

In addition to these comments, WRA joins in the separate comments provided by Trout Unlimited, National Wildlife Federation, Grand County, Northwest Colorado Council of Governments, and the Colorado River Water Conservation District.

These comments address the analysis, findings, and underlying assumptions of the WGFP DEIS in light of the requirements under the National Environmental Policy Act (NEPA) and Section 404 of the Clean Water Act (CWA). They are grouped into the following topic areas:

1. Background on purpose and goals of NEPA and CWA (pp. 2-4);
2. Purpose and Need Statement (pp. 5-8);
3. Water Conservation and Efficiency (pp. 8-27);
4. Similar and Related Actions; Cumulative and Connected Impacts (pp. 27-32);
5. Construction Costs (pp. 32-37);
6. Hydrology, Modeling, Water Quality, and Stream Morphology (pp. 37-39);
7. Energy Use (p. 40);
8. Range of Alternatives (pp. 40);
9. Aquatic and other Environmental Impacts (p. 41)
10. Mitigation (p. 41).

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Western Resource Advocates' comments on WGFP Draft EIS -- December 2008

1. National Environmental Policy Act and Clean Water Act Requirements

The National Environmental Policy Act[1] requires federal agencies to prepare a detailed statement on the environmental impacts of a proposed "major federal action" and all of the reasonable alternatives thereto before authorizing any such action.[2] An agency proposal for major federal action exists for NEPA purposes "at that the stage . . . when an agency subject to [NEPA] has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated."[3] NEPA's purpose is to promote efforts "which will prevent or eliminate damage to the environment",[4] to inform the public of environmental consequences,[5] and to "help public officials . . . take actions that protect, restore, and enhance the environment."[6]

Under NEPA, the WGFP DEIS must analyze "connected", "cumulative", and "similar" actions and three types of impacts.[7] Connected actions are those which are "closely related," including those that "[c]annot or will not proceed unless other actions are taken", or those that "[a]re interdependent parts of a larger action and depend on the larger action for their justification."[8] Cumulative actions are those that "have cumulatively significant impacts and should therefore be discussed in the same impact statement."[9] Similar actions include those that have "common timing or geography."[10] To assess "significance" NEPA requires consideration of "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts."[11]

The three types of impacts to be studied in an EIS are those that are "direct," "indirect," and "cumulative."[12] Direct effects are those that "are caused by the action and occur at the same time and place."[13] Indirect effects are those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[14] A project's "cumulative impact," is

> the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable

[1] 42 U.S.C. §§ 4321-4370f.
[2] *Id.* at § 4332(2)(C).
[3] 40 C.F.R. § 1508.23.
[4] 42 U.S.C. § 4321.
[5] 40 C.F.R. § 1500.1(b).
[6] *Id.* at § 1500.1(c).
[7] *Id.* at §§ 1508.25, 1508.7, 1508.8.
[8] *Id.* at § 1508.25(a)(1).
[9] *Id.* at § 1508.25(a)(2).
[10] *Id.* at § 1508.25(a)(3).
[11] *Id.* at § 1508.27(b)(7).
[12] *Id.* at 1508.25(c); *see also id.* at §§ 1508.7, 1508.8.
[13] *Id.* at § 1508.8(a).
[14] *Id.* at § 1508.8(b).

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	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 future actions . . . . Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.[15] NEPA's many policies and goals include: o Encouraging a "productive and enjoyable harmony between man and his environment";[16] o Promoting "efforts which will prevent or eliminate damage to the environment and biosphere";[17] o Using "all practicable means and measures . . .to create and maintain conditions under which man and nature can exist in productive harmony";[18] o Fulfilling "the responsibilities of each generation as trustee of the environment for succeeding generations";[19] o Assuring "all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings";[20] o Allowing beneficial use of the environment "without degradation . . . or other undesirable and unintended consequences";[21] o Preserving "important historic, cultural, and natural aspects of our national heritage";[22] o Achieving a "balance between population and resource use";[23] and o Enhancing "the quality of renewable resources" and maximizing recycling of depletable resources.[24] **Mitigating Environmental Impacts** At the most fundamental level, NEPA is intended to help public officials make decisions that are based on an understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment.[25] Federal agencies are required, to the fullest extent possible, use all practicable means consistent with the requirements of NEPA to "restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."[26] Federal Council on Environmental Quality (CEQ) regulations further define mitigation as: [15] *Id.* at § 1508.7. *See also Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998) (with respect to a cumulative impacts analysis, an agency must provide "some quantified or detailed information" because "[w]ithout such information, neither courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide."). [16] 42 U.S.C. § 4321. [17] *Id.* [18] *Id.* [19] *Id.* at § 4331(b)(1). [20] *Id.* at § 4331(b)(2). [21] *Id.* at § 4331(b)(3). [22] *Id.* at § 4331(b)(4). [23] *Id.* at § 4331(b)(5). [24] *Id.* at § 4331(b)(6). [25] *See* 40 CFR § 1500.1(b). [26] *Id.* at 1500.2(f). 3	

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1	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 o Avoiding the impact altogether by not taking a certain action or parts of an action. o Minimizing impacts by limiting the degree or magnitude of the action and its implementation. o Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. o Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. o Compensating for the impact by replacing or providing substitute resources or environments.[27] Effective mitigation starts at the beginning of the NEPA process, not at the end, and must be included as part of the alternatives development and analysis process. CWA requirements also apply to the WGFP, including § 404(b)(1) guidelines. These Guidelines (40 CFR Part 230.10(a)) allow "… permit issuance for only the least environmentally damaging practicable alternative." The emphasis is on the avoidance of impacts. The Guidelines require "…that no discharge shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." The Guidelines also make clear that "compensatory mitigation may not be used as a method to reduce environmental impacts in the evaluation of the least environmentally damaging practicable alternatives for the purposes of requirements under Section 230.10(a)." *** Based on our review of the WGFP DEIS, the analysis completed thus far fails to satisfy the requirements of NEPA and CWA Section 404(b) noted above. In particular, the DEIS lacks an adequate evaluation of the proposed project's: purpose and need; water conservation and efficiency by proposed participants; similar and related actions; cumulative and connected impacts; construction costs; hydrologic modeling, water quality and stream morphology; energy use; alternatives (including the No Action Alternative and elements considered but rejected); and proposed mitigation. [27] 40 C.F.R. § 1508.20. *See also* MEMORANDUM OF AGREEMENT BETWEEN The Department of the Army AND The Environmental Protection Agency CONCERNING THE DETERMINATION OF MITIGATION UNDER THE CLEAN WATER ACT SECTION 404(b)(1) GUIDELINES, February 6, 1990. 4	1. See responses to each of these specific comments below.

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2	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **2. Purpose and Need Statement** The stated "Purpose and Need" of the WGFP is: The purpose of the Windy Gap Firming Project is to deliver a firm annual yield of about 30,000 AF of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project and to provide up to 3,000 AF of storage to firm water deliveries for the Middle Park Water Conservancy District. Firm water deliveries from the Windy Gap Project are needed to meet a portion of the existing and future demands of the Project Participants. (DEIS Executive Summary at 2). This statement of purpose and need is flawed and too narrow to satisfy the statutory requirements of NEPA, CWA, and CEQ regulations found at 40 C.F.R. §§1500 *et seq*., including §1500.2, §1502.1 (full and fair discussion of significant environmental impacts and reasonable alternatives that would avoid or minimize adverse impacts), §1502.14 ("rigorously explore and objectively evaluate all reasonable alternatives"), and §1508 (full analysis of connected, cumulative, and similar actions as well as direct, indirect, and cumulative impacts). The consequence of the DEIS's unreasonably constrained purpose and need statement is to screen out alternatives for meeting the water supply needs of the participating municipalities. These alternatives include, but are not limited to, increasing levels of water conservation and transferring water in the South Platte basin from agricultural to municipal use. The purpose and need should be revised to more accurately reflect the purpose of helping meet municipal water demands and the DEIS should include a broader range of alternatives for meeting those demands. For all practical purposes, Reclamation has simply used the applicant's assertion regarding the project's purpose and need, i.e., "firming up" Windy Gap. When this issue was raised in the scoping meetings, Reclamation responded by ignoring the criticism (see **Public Scoping Report**, Reclamation, December 13, 2003). It offered instead a laundry list of the demand side comments acknowledging issues raised about the purpose and need for the Firming Project included clearly identifying and substantiating participant water demands and the methodology by which water demand was projected. (**Public Scoping Report**, page 10) Defining purpose and need so narrowly by relying on the language of the applicant is inadequate. Federal agencies may give deference to a private party applicant's stated purpose and need, but agencies also are required to look more broadly to ensure consideration of reasonable alternatives. *Citizens Committee to Save our Canyons v. United States Forest Service*, 297 F.3d 1012, 1030-31 (10th Cir. 2002). Courts repeatedly find a nexus between an agency's need to develop a project's purpose and need independently, on the one hand, and the agency's duty to identify reasonable alternatives, on the other. An agency cannot define objectives so narrowly as to preclude 5	2. The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yield from Participant water rights that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap water represented a source of existing water available to the Participants, but required additional infrastructure to provide reliable deliveries. Thus, the purpose of the WGFP was to fix a broken project, not to search for other sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

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2	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 a reasonable consideration of alternatives. *Davis v. Mineta*, 302 F.3d 1104 (10th Cir. 2002), *citing Colo. Environmental Coalition v. Dombeck*, 185 F.3d 1162, 1174-75 (1999). To be consistent with this legal requirement, Reclamation should have conducted its own analysis of the purpose of the applicant's proposed project. NEPA provisions requiring an examination of potential alternatives to a project or proposal are considered the "linchpin" of the impact statement. *Monroe County Conservation Council v. Volpe*, 472 F2d 693 (2nd Cir. 1972). If one accepts the premises that policy objectives of NEPA (including Section 101) can be achieved only through good planning and that the consideration of a wide range of alternatives is essential to "good" planning, then the analysis of alternatives in the EIS process is the most important measure of the effectiveness of NEPA. It is unlawful for an agency to arbitrarily restrict its purpose when the result excludes viable alternatives. *See Simmons v. Corps of Engineers*, 120 F.3d 664, 666 (7th Cir. 1997) (court found Army Corps "defined an impermissibly narrow purpose" and "therefore failed to examine the full range of reasonable alternatives and vitiated the EIS"). CEQ guidelines require an EIS to describe "[a]lternatives to the proposed action, **including those not within the existing authority of the responsible agency**." CEQ Guidelines, 40 C.F.R. §1500.8(a)(4) (emphasis added). The range of alternatives must include a "no action" alternative and "non-structural" options as well as modifications of the proposed project. Based on NEPA Section 102(2)(A), the Guidelines stress "[t]he interdisciplinary approach should not be limited to the preparation of the environmental statement, but should also be used in the early planning stages of the proposed action." Guidelines, §1500.8(c) (emphasis added). Because the Army Corps of Engineers is also part of this NEPA process, the Section 404(b)(1) Guidelines are relevant. As noted above, these Guidelines allow "… permit issuance for only the least environmentally damaging practicable alternative" and "…that no discharge shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 CFR Part 230.10(a). They also make clear that "[C]ompensatory mitigation may not be used as a method to reduce environmental impacts in the evaluation of the least environmentally damaging practicable alternatives for the purposes of requirements under Section 230.10(a)." In sum, for all the above reasons, the "purpose and need" section of the DEIS is invalid. It must either be re-written or interpreted in a way that it does not restrict or eliminate alternatives by either restricting the **purpose** or misstating the **need**. Structuring the Purpose and Need of the WGFP as delivering "a firm annual yield of about 30,000 AF of water from the existing Windy Gap Project" dramatically reduces the scope of alternatives for achieving the real need of the participant cities—meeting water demands. The DEIS thus arbitrarily drops consideration of alternatives that could better comport with 40 C.F.R. § 1502.14 including, among other things, water conservation, water reuse, transfers of water from agricultural use in the South Platte basin, land use planning 6	

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2	strategies, and other mechanisms for providing water (or reducing demand) that might equally well meet future water demands in a more economic and sustainable manner.[28]	
3	Perhaps most importantly, as noted in detail under the next comment section, **Water Conservation and Efficiency**, the WGFP Purpose and Need is flawed due to over-estimations of future population compounded by incomplete and inaccurate data on per capita use by participants. These over-estimations create fatal flaws not only in the No Action alternative but—since DEIS alternatives necessarily include comparisons to each other—also in the entirety of the DEIS. In addition, population over-estimations compound over time: an inaccurately high projected growth rate in the first several years of any period compounds errors in later-year projections. The Final EIS—and DEIS revisions in the meantime—must address this shortcoming by broadening the Purpose and Need Statement to more accurately reflect the participant municipalities' projected population and water demands.	3. The population projections and the per capita water use rates assumed for the water demand projections are reasonable and supportable based upon the information available at the time they were prepared. See response to Comment No. 6 regarding population projections and responses to Comment Nos. 7 through 12 regarding the Participants' per capita water use rates.
4	As an additional note, the Purpose and Need Statement may inaccurately project future water demands for the Platte River Power Authority (PRPA). PRPA supplies its customers with electricity primarily generated at its coal-fired Rawhide Plant and several simple-cycle natural gas turbines. The PRPA's future water demands may be incorrectly estimated because of: (1) artificially high population growth estimates and (2) inaccurate assumptions about the type of future electricity generation. Conventional forms of electricity generation—coal- and natural gas-fired power plants—require water to cool and condense steam and for other plant processes. A typical western coal plant consumes approximately 541 gallons of water per MWh of electricity generated; in contrast, a combined cycle gas plant uses 180 gallons/MWh, and wind turbines and solar photovoltaic panels use virtually no water. Likewise, energy conservation consumes no water.[29] Many WGFP participants—and much of the PRPA's service area—have experienced rapid population growth in recent years. With the recent economic downturn, however, population growth has slowed dramatically. The PRPA's future electricity load growth is likely based, in part, on out-of-date population growth estimates. Slowed population growth is likely to lead to lower water demands *and* lower future electricity demands (*see* detailed comments in the **Water Conservation and Efficiency** section). Reduced electricity demands will delay PRPA's need to construct new power generation facilities, and delay its demand for use of WGFP water. The amount of water demanded by the PRPA depends on the type of power plant. The Draft EIS states that the PRPA's "participation in the WGFP is to meet the water needs for their current power generation facility, not to meet future water needs for expansion of power generating capacity."[30] However, continued electricity generation at	4. Platte River Power Authority (Platte River) serves Estes Park, Fort Collins, Loveland, and Longmont. Loveland and Longmont are WGFP Participants. Population projections for the WGFP Participants are discussed in response to Comment No. 6. As indicated in that response, data from the State Demographer's Office (SDO) support the projections used in the EIS analysis. Additionally, as stated in the Purpose and Need Report and the report Appendices, Platte River's need in this project is to firm Windy Gap (WG) units "to meet the current needs of the existing power facility" (Purpose and Need Report, p. 53) and "to meet existing average demands" (Appendices p. M-5). Platte River must be able to provide reliable service to existing customers. Therefore, the population projections made for Loveland and Longmont in this EIS, and the growth assumed for Estes Park and Fort Collins do not factor into Platte River's need for the WGFP. As stated in the Purpose and Need Report, Platte River is evaluating its options for additional power generation to meet future demands. New power could come from a variety of sources, several of which may be less water-intensive than the current coal-fired plant. The Purpose and Need Report states that "future demand projections will be continually updated by Platte River to determine the timing of power generation needs and the associated water requirements" (p. 54). Also, conservation of water or electricity can be considered in future supply planning, but existing power plant demands would not change without conservation within the plant itself. Water conservation at Platte River's Rawhide Plant is essentially 100 percent because all water is recycled and reused until extinction. Platte River employs a performance engineer to manage improvements in energy usage and heat rate, thereby reducing water use. Technological improvements to reduce water use are continually being explored. In addition, the Appendices state that various water conservation measures are being identified and studied for applicability at the Rawhide Plant.
	[28] *See* Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18026 (1981). [29] Western Resource Advocates. 2008. *A Sustainable Path: Meeting Nevada's Water and Energy Demands*. Boulder, CO. [30] Draft EIS, Chapter 1, page 1-35.	
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4	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 PRPA's coal-fired Rawhide power plant is not consistent with other initiatives taken by the power authority. For example, the PRPA has signed on to Colorado Governor's Climate Action Plan to reduce greenhouse emissions by 20% before 2020. If PRPA pursues energy efficiency and conservation measures, along with water-efficient renewables like wind and solar photovoltaics, its need for WGFP water may be substantially reduced. In sum, the recent economic downturn, slowed population growth, and changing regulatory climate for greenhouse gas emissions cast doubt on PRPA's future electricity and water demands. All of these factors have changed since 2005, when the WGFP Purpose and Need Statement was first issued. Prior to issuing a Final EIS, the Bureau should explain why all project participants, including the PRPA, have a bona fide need for the WGFP. **3. Water Conservation and Efficiency** Prior to committing large financial resources to the proposed Windy Gap Firming Project (WGFP), the proposed beneficiary water utilities must greatly increase their demand management. Conservation represents a "no regrets" strategy – one that does not tie the utilities to expensive infrastructure or rising electricity costs, and does not have detrimental impacts on river systems or rural communities. While conservation programs come with a price tag, it's much smaller than the one for the Windy Gap Firming Project. The proposed alternative for WGFP involves a contract with the Bureau of Reclamation.[31] As a result, the provisions of the federal Reclamation Reform Act (RRA) apply. *See* 42 U.S.C. § 390aa *et seq*. Under the RRA, the Bureau has a duty to promote "full consideration and incorporation of prudent and responsible water conservation measures" in the water projects of non-Federal water entities that receive water from Federal reclamation projects. 42 U.S.C. § 390jj(a). Project beneficiaries must develop conservation plans containing definite objectives, proposed conservation measures and a proposed time schedule for compliance, *id.* at § 390jj(b); 43 C.F.R. § 427.1, and must submit their conservation plans to the Bureau. 43 C.F.R. § 427.1. The RRA requires that water recipients certify their compliance with the Act. 42 U.S.C. § 390ff. These requirements must be met prior to approval of the project, to ensure timely and economic inclusion of water conservation measures in the original design of the project. *See* 43 U.S.C. § 390jj. Post-hoc consultation could result in expensive refitting, lengthy delays in service, or less effective conservation measures. It is unclear from the draft environmental impact statement (DEIS) whether all project beneficiaries have complied with the RRA. The final EIS must include evidence that the provisions of the RRA have been met by all project beneficiaries. [31] Implementation of prepositioning may require modification or replacement of the existing conveyance and storage contract between Reclamation, the Subdistrict, and the NCWCD. *See* DEIS at 1-42. 8	
5		5. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

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6	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **DEIS Population Projections are Over-inflated:** Section 1.6.2.1 of the DEIS discusses population projections for the participants. The DEIS indicates that the combined population of all 13 project participants (excluding Platte River Power Authority) will increase from 426,000 in 2004 to 750,000 in 2030 and 901,000 by 2050. Given the increasingly severe economic recession (which many are calling a recession) in 2007-2008, and its impact on housing sales, population growth in the area will be slow in the near-term. Indeed, Denver Metro area November 2008 home sales were the "worst on record", with average prices falling to levels not seen since 2001.[32] Other cities along the Front Range – including WGFP participants – have seen similar trends. The population growth projected in the Draft EIS reflects an annual growth rate of 2.2% between 2008 and 2030, and 0.9% between 2031 and 2050. An annual growth rate of 2.2% exceeds both the projected national annual growth rate (0.84%) and Colorado's projected annual growth rate (0.91%) for the period from 2005 to 2030.[33] Although several WGFP participants experienced above-average rates of growth before the 2007-2008 economic downturn, these high rates of growth will not be sustained. If population in WGFP cities grows at an annual rate of 1.0% over the period from 2008 to 2030, total water demands will be substantially lower. Under this more conservative (and likely more accurate) growth rate, WGFP participants' population would be 552,000 in 2030, and 673,000 in 2050 – that's **227,000 fewer residents than projected in the DEIS** (Figure 1, below). If population grows more slowly than projected by the DEIS, water demands will also rise more slowly. [32] Rocky Mountain News. December 10, 2008. "November home sales in metro area worst on record." http://www.rockymountainnews.com/news/2008/dec/10/november-home-sales-in-metro-area-worst-on/ [33] U.S. Census Bureau, Population Division. 2005. File 1: Interim State Projections of Population by Sex: July 1, 2004 to 2030. Accessed on December 17, 2008 through http://www.census.gov/population/www/projections/projectionsagesex.html 9	6. The recession has indeed had an impact on growth in the past 2 years in many previously fast-growing areas, and the Participant service areas are no exception. However, recessions are short-term economic phenomena, similar to economic boom growth. Long-term growth projections are normalized to "smooth out" cyclical high and low-growth periods. This comment presumes that the Participant growth rates should be in line with U.S. or Colorado growth rates and, therefore, suggests that a lower growth rate be assumed for this EIS. This approach fails to recognize a fundamental principal in demographic forecasting, which is to focus on the local influences affecting a particular area's growth. The national growth rate reflects projected demographic and economic conditions and trends for all 50 states; some regions of the U.S. are built out and others do not have a well-developed economic base. Individual states will experience vastly different conditions than Colorado can expect in terms of jobs, migration, and other factors that determine population growth. In fact, historical Census data show that Colorado's annual growth rates have been considerably higher than U.S. growth rates since at least 1980. Comparing the projected annual growth rate of Colorado to that of the WGFP Participants also is misleading. The State of Colorado includes many areas, especially rural areas, that are projected to experience very slow growth. These areas impact statewide growth projections, but are not reflective of the locations or conditions of the majority of the Project Participants. Additionally, the 2.2% rate is the average projected growth rate of the combined projected populations of all Participants. The population projections for the DEIS, and ultimately the water demand projections, were made on an individual Participant basis, factoring in the unique historical trends, anticipated future trends, land use characteristics, and customer base of each Participant. The projected growth rates applied to each Participant are discussed in the Appendices to the Purpose and Need Report. The SDO prepares updated statewide and county-level population projections each year. These projections incorporate local information and input, and are continually adjusted to reflect current economic conditions. The November 2008 projections, the most recent available, show that for the counties in which the Participants are located, projected average annual growth rates range from 1.1% to 3.1% between 2005 and 2030. These recently projected rates are in line with those used for the WGFP Participants in the EIS analysis.

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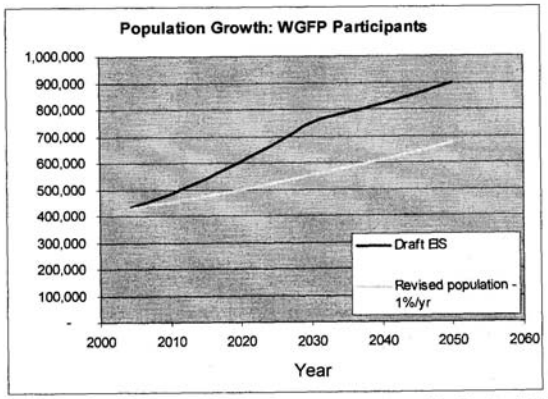
6	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008  **Figure 1. Population growth for WGFP participants, as projected by the Draft EIS (blue) and under a revised scenario of 1% annual growth rate (yellow).** *WRA's calculations throughout these comments use the population growth estimates used by BOR in the Draft EIS. However, we note here that these population projections are fatally flawed and cannot support the proposed project.* As noted in the prior section, population over-estimations compound over time: an inaccurately high projected growth rate in the first several years of any period compounds errors in later-year projections. If population grows more slowly than the DEIS projects—which all evidence indicates that it will—future water demands will be correspondingly lower than our re-calculated estimates.	
7	**Proposed Per Capita Water Use is Arbitrary:** With just a few paragraphs of explanation, the Purpose and Need and DEIS proposes 217 gallons per person per day (gpcd) as a "reasonable average" of system-wide water use against which to compare WGFP beneficiaries.[34] The figure is averaged from year-2000 data that underlie both the first phase of Colorado's recent Statewide Water Supply Investigation (SWSI) and a paper from the University of Utah. The proposed average is arbitrary, capricious, and unreasonable. It is a fatal flaw in the DEIS that must be revised. The proposed average water use rate is flawed for several reasons: 1. The water use rate in the Purpose and Need is derived from a single year of data, rather than a range of years; [34] Purpose and Need, p. 34. 10	7. The purpose of the discussion of comparable water use rates in the Purpose and Need Report is not to develop estimates of water use for various Participants, adjusting for all other factors, but to provide a more generalized comparison to place the water use of the Participants in the context of other water providers to determine reasonable water use levels. The DEIS provides water use comparisons based on the published data available at the time of development of the Purpose and Need Report. The SWSI and University of Utah reports did not contain multiyear historical data, but did include data and information useful for these analyses, in terms of recent data for communities of similar characteristics. Several shortcomings of these data sources are acknowledged, but the data extracted for use are either Colorado-specific or includes communities comparable in size and climate to the Participants. See responses to Comment Nos. 8 through 12 for further elaboration.

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2. Many of the communities that were analyzed in the University of Utah paper and compared to WGFP participants have higher average temperatures and lower rates of precipitation than WGFP participants;
3. The University of Utah study relies on county-wide water use data, rather than city-specific data, skewing water use rates;
4. The University of Utah paper does not adequately integrate expected conservation savings; and
5. The Purpose and Need determines a per capita water use rate using communities from across Colorado, including several from the Western Slope, which have much higher rates of water use than Front Range communities.

8

First, it is arbitrary to use single year data to set an average for future years. The year 2000 is outside the norm; indeed, based on the multi-year data for Windy Gap cities in the P&N, the year 2000 had unusually high water rates of water use. The P&N and DEIS must not perpetuate the errors inherent in using high, single-year data. Rather, it must use a range of years to derive an average for projected future use.

9

Second, many of the communities studied in the Utah report have considerably hotter and drier climates than WGFP participants. For example, as shown in Table 1, below, Salt Lake City, St. George, Phoenix, Lewiston, Las Vegas and Boise all have significantly higher average annual temperatures and higher average July temperatures than Greeley, Broomfield and Longmont.[35] Additionally, nearly all receive less precipitation than the Colorado cities, some as little as 1/2 to 1/3 of Front Range communities.[36] The more arid climates of many cities in the Utah paper make it a poor choice for comparison to WGFP participant cities.

Table 1: Temperature and Precipitation for Select Cities[37]

	Average Annual Temperature (F)	Average July Temperature (F)	Average Annual Precipitation (in.)
Boise, ID	51	74	11.8
Greeley, CO	48	72	12.1
Broomfield, CO	49	71	13.8
Longmont, CO	48	71	13.3
Las Vegas, NV	67	90	4.1
Lewiston, ID	53	74	12.6
Phoenix, AZ	73	93	7.7
Salt Lake City, UT	52	78	15.6
St. George, UT	60	83	8.3

10

Third, the Utah paper relies upon county-wide data rather than water provider data, thereby skewing any comparison to residents of WGFP cities. Using county-wide

[35] http://www.weatherbase.com/
[36] Id.
[37] Id.

8. This comment inaccurately suggests that the EIS water demand projections relied upon a single year of data. The water use rates used in projecting future water demands for each Participant were derived from a number of years of data specific to each individual Participant. For example, the City of Broomfield's future water use rate is based on historical water use rates between 1996 and 2003 (refer to the Appendices to the Purpose and Need Report for more detail on each Participant). Future water use rates were not based upon a single year data point for any Participant. The average rate developed from the SWSI and Utah reports (year 2000 data) and multiple years from Denver Water is only included in the Purpose and Need discussion to provide context to the Participants' individual and combined water use rates. The shortcomings of each data source are noted, but together they provide a sufficient basis for assessing the reasonableness of Participant water use. The average historical total gpcd values for most Participants ranged from 123 to 202, with most Participants experiencing water use of less than 175 gpcd (CWCWD, LTWD, MPWCD, and PRPA are special cases as described in the report and Appendices). These average rates were used when projecting future water demands, and are well below the reasonable threshold.

9. Data for a number of communities was provided in the University of Utah report; however, many of those communities were not comparable to the Participants in terms of size, temperature, or precipitation. For those reasons, only data for select communities were used for comparison to the Participants. Boise's and Lewiston's average temperatures are slightly higher than those of Greeley, Broomfield, or Longmont, but Boise's average annual precipitation is similar to Greeley's and Lewiston's precipitation and, therefore, Boise's precipitation is also within the range of northern Colorado communities.

10. Countywide water use figures were not used to project water demands in the EIS. The Technical Notes section of the Utah report states the following: "the

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10	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 data rather than data from discrete water providers distorts the average because rural communities typically have higher rates of use. As the WGFP P&N accurately notes, the use of county data is prone to over-estimate use: "larger communities . . . typically have lower gpcd."[38] For instance, in 2000 the water utility for Boulder, Colorado, reported a system-wide gpcd of 201.[39] By comparison, the USGS data, which underlies the Utah paper, uses a county-based system-wide gpcd of 245 for Boulder County, over 22% higher. Because the vast majority of new development is in tightly-knit residential development rather than rural development, use of county-wide data is arbitrary and irrelevant to projected future municipal water demand.	focus of this report was to examine water use in urbanized areas. Although several of these areas [the metropolitan areas included in the study] are quite large and contain sizeable amounts of undeveloped land, the population in each is concentrated in the urban core." The objective of the analysis was to characterize and compare water use rates of relatively urban areas in the West; however, the defined metropolitan areas in the study also included rural users that are likely to use water differently than urban users. The conditions contained in the metropolitan areas of the report appear to reflect those of the WGFP Participants, some of which are more urban and others that continue to serve rural and agricultural customers and meet those types of demands.
11	Fourth, exacerbating the flawed choice of comparison cities, year-2000 data, and county-data, the University of Utah paper fails to reflect the anticipated reductions in per capita use by most cities in the region. Utah itself has formally committed to a statewide 25% reduction in water use over the next few decades. Numerous water providers throughout that state have also adopted this goal and many have nearly attained those savings today. The Jordan Valley Water Conservancy District, which provides water to the cities of West Jordan, South Jordan, Sandy, Midvale, Riverton and South Salt Lake as well as numerous irrigation districts, has committed to reduce use by 25% from 2000 levels by 2025.[40] As of 2004, the Jordan Valley Water Conservancy District already had seen a 20 percent reduction, lowering their per capita water use from 250 to 207 gpcd in only four years.[41] This commitment has, and will continue to, drastically reduce the per capita use throughout Utah. Even more on point with water demands of WGFP cities, Colorado cities have experienced dramatic and sustained reductions in per capita use since 2002. The Colorado Water Conservation Board (CWCB) has incorporated a 25% per capita reduction goal for state-wide water planning. *See* sub-section on "**Demand Forecasting**" below.	11. The water savings experienced by Participants as a result of the conservation programs in place is captured in the historical water use data. The majority of Participants also have plans to incorporate additional conservation measures into their overall conservation programs. However, it is generally difficult to determine the savings that would result from any one measure, since savings would depend on how the measure was implemented and on the specific characteristics of each Participant (e.g., type and number of customers affected, age of housing stock, and income levels.) Seven of the Participants have approved conservation plans from the CWCB and others are in the process of plan approval, or would have an approved plan prior to delivery of WGFP water. These conservation plans include reduced water use goals for the water provider and its customers. In fact, the Participants with CWCB-approved conservation plans have developed conservation goals ranging from 5% to 17%. This conservation will be needed to meet demands in addition to those supplied by the WGFP.
12	Fifth, the Purpose and Need report also looked at Phase I of Colorado's Statewide Water Supply Initiative (SWSI) which determined a statewide system-wide average of 210 gpcd for the year 2000. This is an inaccurate predictor of Front Range consumption as it factors-in West Slope communities where usage is not representative of WGFP proponents. Many of the levels of system-wide per capita use listed in the SWSI report exceed 300 gpcd.[42] These rates are significantly higher than documented 2001 water use data in Front Range Colorado municipalities—when Boulder's system-wide water use was 180 gpcd, Highlands Ranch was 191 gpcd, and Denver was 205 gpcd.[43,44] A number	12. SWSI's statewide average water use was 210 gpcd in 2000, which includes the Front Range, the West Slope, and other communities around Colorado. However, the SWSI average for the South Platte Basin was 206 gpcd, just slightly lower than the statewide average. The statewide average is heavily influenced by the South Platte Basin since the majority of Colorado's population and water use occur within that Basin. The areas of the state with exceptionally high water use rates likely make up only a small percentage of the population and total water use. Using the average South Platte Basin gpcd instead of the statewide gpcd in the analysis of comparable water use rates would result in a regional average gpcd of 215, as compared to the 217 gpcd used in the Purpose and Need Report. This slightly lower comparable gpcd would not change the conclusions of the Purpose and Need evaluation. See response to Comment No. 11 regarding the conservation savings issue.

[38] US Bureau of Reclamation . Windy Gap Firming Project Purpose and Need Report. September 2005. 30.
[39] City of Boulder, Colorado 2000 Treated Water Master Plan & 2000 Utilities Annual Report.
[40] Jordan Valley Water Conservancy District, *2004-2005 Summary of Operations,* at p. 49.
[41] Id.
[42] Colorado Water Conservation Board, Statewide Water Supply Initiative Report (SWSI), November 2004, Appendix E, Table 7, at p. 917.
[43] Western Resource Advocates, *Smart Water: A Comparative Study of Urban Water Use Efficiency Across the Southwest*, Dec. 2003, at p. 66.
[44] Western Resource Advocates. Table 4. 1998-2003 Front Range Municipality Consumption Data (GPCD). 11.

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12	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 of the county rates even exceed 400 gpcd, with one at 681 gpcd (Pitkin County).[45] Water use at this level is virtually unheard of throughout the entire Southwest, exceeding some of the regional system-wide averages by a factor of two to three. Like the Utah study, the SWSI data is also only a snapshot of use from one, relatively high water use year (2000) as illustrated in Table 4 (page 19, *infra*), not an average taken over a number of years. Importantly, the SWSI has undergone significant updates since its release in late 2004. Notably, SWSI Phase II included a Water Conservation Technical sub-committee that generated data on water savings available through a range of conservation measures.[46] The research found that, state-wide, between 287,000 and 459,000 acre-feet per year could be saved by conservation.[47]	
13	**Conservation Planning and Savings Targets are Required by Law:** Much like planning for new supplies, demand-side management takes time to plan and implement. Therefore, the two must be concurrently considered and integrated into long term planning. In some communities, effective demand management programs can reduce, delay, or eliminate the need to seek new supplies, as well as reduce costs and energy consumption associated with pumping and treating water before and after use — thereby saving tax payers money. Unfortunately, conservation savings goals do not appear to play a prominent role in the planning processes for many of the WGFP participants. Contrary to the DEIS' claim that "all WGFP participants have conservation plans,"[48] not all have taken the steps to create comprehensive planning documents that comply with State law. Five communities' plans are so new they were submitted to the CWCB following the release of the DEIS (*see* Table 2)[49] As a prerequisite to moving forward with the WGFP, all participants that qualify as "covered entities" under state statute must have approved conservation plans on file with the Colorado Water Conservation Board. At this time, only Erie and Fort Lupton have newly approved plans (see Table 2, next page), while others have yet to meet the state and RRA requirements. The City of Broomfield, Louisville, Loveland, Lafayette and Central Weld County Water District have no recent water conservation plans. Since their last submitted plan, new state law requires stronger conservation planning, savings goals and tracking savings. In addition, the requirements of the RRA—including conservation plan objectives, proposed conservation measures and a proposed time schedule for compliance—would not be met were the City of Lafayette or Central Weld County Water District to rely on such outdated plans. Recently the City of Lafayette had a draft	13. See response to Comment No. 5 on WGFP Participant conservation plans. Also, see response to Comment No. 11 for a discussion on incorporating future conservation savings into water demand projections. While all Participants may not currently have a CWCB-approved conservation plan, each has a host of measures they have adopted or plan to adopt. The conservation savings goals of WGFP Participants are expected to be realized through a variety of measures; however, these anticipated water savings are not guaranteed to occur. Water providers plan their supply portfolios to meet the demands of future customers and cannot be caught short if actual water savings do not equal the goals outlined in conservation plans. Several of the WGFP Participants are involved in other regional water projects as well. Separate NEPA compliance of other water projects have not been finalized, and to date, no decisions have been made as to whether all, some, or none of these projects will be permitted. The WGFP Participants that are pursuing more than one project are doing so because implementation of the WGFP alone would not meet all of their projected future water needs.

[45] SWSI, Appendix E, Table 7, at p. 917.
[46] Colorado Water Conservation Board, Colorado's Water Supply Future: State Wide Water Supply Initiative Phase 2. November, 2007. Table 2-1. http://cwcb.state.co.us/NR/rdonlyres/C65D6406-3EE0-4E44-9C5E-E1655D814CB8/0/S2_ConservationEfficiency.pdf.
[47] *Id.*
[48] WGFP DEIS §1.6.2.3 Water Conservation. 1-15.
[49] Colorado Revised Statute §37-60-126.

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conservation plan posted on their website; however; it limited "public" comment to utility customers—in violation of state statute.[50]

Little Thompson Water District and the Town of Superior have no conservation plans on file. These plans must be submitted to the CWCB and fully comply with state conservation statutes, including specific conservation savings targets and goals that are integrated in the utilities' long term planning processes. Setting conservation savings goals is an essential component of a community's water conservation plan, a requirement of the RRA and of state statute.

Table 2: Status of Conservation Plans of WGFP Participants (as of fall 2008)

Participant	Annual Deliveries (AF)[51]	Qualified as a "Covered Entity" under Colorado State Statute	Approved Conservation Plan on file with the CWCB
City & County of Broomfield	10,107	Yes	In Process
City of Evans	2,578	Yes	In Process
City of Ft. Lupton	2,500	Yes	Yes
City of Greeley	27,067	Yes	In Process
City of Lafayette	4,700	Yes	In Process
City of Longmont	20,000	Yes	In Process
City of Louisville	4,900	Yes	NO
City of Loveland	13,837	Yes	NO
CWCWD	2,786	Yes	2005 Plan
Little Thompson Water District	4900	Yes	NO
Town of Erie	2,800	Yes	Yes
Town of Superior	2,163	Yes	NO

At least seven of the fourteen participants are also participants in other regional water projects currently in the permitting process. In many cases it is unclear that all water being pursued is needed, especially if adequate water rates, loss reduction and conservation measures are adopted and implemented. Developing more water than is

[50] Colorado Revised Statute §37-60-126. Water conservation and drought mitigation planning - programs - relationship to state assistance for water facilities - guidelines - water efficiency grant program - repeal. §5. 2004.

[51] Colorado Water Conservation Board database of covered entities; except Superior from WGFP DEIS, 2003 figure Table N-5. pg N-6.

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13	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 necessary places an undue burden on existing residents though increased costs. All projects and demand projects should be examined collectively to ensure that needs are not being over estimated. *See also* Section 4 of these comments, **Similar and Related Actions and Cumulative and Connected Impacts.**	

Table 3: Firm Yield and Storage Requests for Front Range Water Projects

Participant	WG Firm Yield	NISP Firm Yield	Halligan/ Seaman (Storage)^	Total FY	Total FY + H/S Storage
Berthoud	—	1,300	—	1,300	1,300
Broomfield	5,600	—	—	5,600	5,600
Central Weld Co.	100	7,100	—	7,200	7,200
Eaton	—	1,300	—	1,300	1,300
Erie	2,000	6,500	—	8,500	8,500
Evans	500	1,600	—	2,100	2,100
ELCWD	—	—	3,795	—	3,795
Fort Lupton	300	3,000	—	3,300	3,300
Fort Morgan	—	3,600	—	3,600	3,600
Ft. Collins (city)	*See Loveland*	*see FCLWD*	1,200	—	1,200*
FCLWD	*See Loveland*	3,000	7,260	3,000*	10,260*
Greeley	4,400	—	48,000	4,400	52,400
Lafayette	800	1,800	—	2,600	2,600
Left Hand WD	—	4,900	—	4,900	4,900
Little Thompson	1,200		—	1,200	1,200
Longmont	5,125	—	—	5,125	5,125
Louisville	900	—	—	900	900
Loveland (city)	4,000	*see FCLWD*		4,000*	4,000*
Morgan Co.	—	1,300	—	1,300	1,300
No. Weld Co.	—		5,445		5,445
NPIC	—	—	5,000	—	5,000
Platte River Power	5,150	—	—	5,150	5,150
Severance	—	1,300	—	1,300	1,300
Superior	1,500	—	—	1,500	1,500
Windsor	—	3,300	—	3,300	3,300
WSSC	—	—	5,000	—	5,000

* cross over between city and water district?

^ as yet no definitive, project wide storage-to-yield ratio for Halligan/Seaman project.

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Com-ment	Letter #1138	Response
14	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **DEIS Demand Forecasts are Flawed:** As previously noted, conservation savings goals do not seem to be part of any of the participants' long term forecasting. **This is a fatal flaw of the DEIS**: future projected demands must integrate savings goals, as required by state and federal law. Conservation savings is an important part of water supply planning. In a recent presentation to the West Slope Joint Water Roundtable Meeting in November 2008, CWCB staff projected future water demands, assuming that per capita water use is reduced by **25% by 2030**.[52] Given that demand management has been proven to result in real water savings, in a cost-effective manner, conservation savings goals **must** be part of the planning and demand forecasting process for **all** WGFP participants and incorporated into the DEIS. Based on per capita water use reductions of 25% and average population growth estimates, WRA re-calculated demand projections for the thirteen WGFP participants.[53] This conservation scenario reduces per capita demands by 1% annually, starting in 2008. Based on this scenario, WGFP participants' water use rates fall from 194 gpcd (average, 1998 – 2003) to 147 gpcd by 2033.[54] We assume these conservation savings are capped at 25% in 2033; but in reality water use efficiency evolves and improves just like any other technology. Therefore, although the scenario does not assume additional savings beyond 2033, further reductions in per capita use will be possible in 2034 and later years. WRA's projected future water demands include system water losses. We assume water losses increase total demands by 10%, a water loss rate deemed acceptable by the American Water Works Association.[55] We note, however, that other cities along the Front Range have significantly lower levels of water loss—sometimes 5% or lower.[56] Thus, 10% is a very conservative estimate. WRA compared our re-calculated projections of total future water demands with existing firm supplies and potential future supplies from other proposed projects. Figure 2, below, shows projected supplies and demands through 2050. According to the DEIS, §1.6.1 Table 1-1, firm yield of WGFP participants is 140,762 AF in 2005. Table 1-4 in the DEIS shows that participants' demand is projected to increase to 251,450 AF in 2050, [52] Relative to use in 2000. Hecox, Eric. November 14, 2008. Presentation to the West Slope Joint Roundtable Meeting. [53] Two recent studies contain examples of widely used demand reduction measures from Colorado and the Western U.S.: The Colorado Water Conservation Board's *Statewide Water Supply Initiative (SWSI) Phase 2 Report* (http://cwcb.state.co.us/IWMD/SWSITechnicalResources/SWSIPhaseIIReport/, viewed on 8/31/2008) and Western Resource Advocates (2003) *Smart Water: A Comparative Study of Urban Water Use Efficiency Across the Southwest* (http://www.westernresourceadvocates.org/media/pdf/SmartWaterBrochure.pdf, viewed on 8/31/2008). [54] Draft EIS, Table 1-3 on p. 1-16. [55] Janice A. Beecher, Ph.D. Survey of State Agency Water Loss Reporting Practices: Final Report to the American Water Works Association. January 2002 [56] Western Resource Advocates. 2007. *Front Range Water Meter: Water Conservation Ratings and Recommendations for 13 Colorado Communities.* (http://www.westernresourceadvocates.org/watermeter/index.php) 16	14. The 25% reduction in water use by 2030 expressed by CWCB staff includes areas throughout Colorado, including some who have no current conservation plans. Water providers that do not currently promote conservation measures, and water users that do not have current incentives in place to reduce water use can achieve high percentage savings off such a baseline. Those providers that currently have strong conservation plans in place and whose customers are actively involved in reducing water use may not be able to further reduce water use by as much as they have in the past. As stated in the response to Comment No. 11, the Participants with CWCB-approved conservation plans have developed conservation goals ranging from 5% to 17%. In general, the WGFP Participants have conservation programs in place and have been realizing the resulting savings. The 25% savings also was based on the year 2000, a single year's water use. As the commenter previously noted, single years are poor analytical tools and 2000 was a high water use year in many Colorado locations. Hence, savings would be much less in a normalized year. In sum, we did not believe that this method of projecting water use patterns is appropriate for this EIS. A global reduction of each Participant's average water use by 1% per year would not be applicable to reflect the actual savings achievable by the Participants.

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110,688 AF greater than participants' 2005 firm yield. Notably, with WRA's conservation savings and revised demand projections, ***existing*** **firm supplies will meet future water demands through 2030**. Other proposed projects, including NISP and its alternatives[57], Broomfield Reservoir, and Halligan/Seaman Reservoir, will meet future demands through 2050 *without construction of the WGFP*.

Furthermore, if population grows more slowly than expected, total water demands may be significantly lower. Using the same assumptions about conservation savings and a revised annual population growth rate of 1%, total water demands in 2030 are 105,300 AF/yr, *slightly less than the current demand*. In 2050, participants' water demands grow to 122,000 AF/yr, well below today's firm supplies.

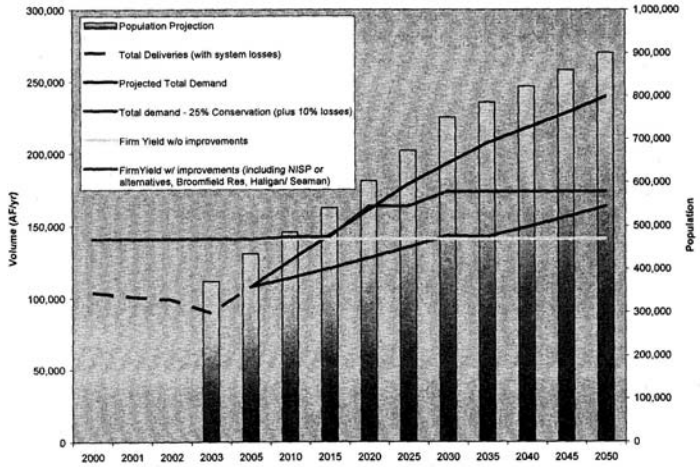

Figure 2. Population growth (right axis; uses DEIS proposed rates of population growth), water demands, and water supply projections (left axis) for WGFP participants. If NISP or its potential alternatives, Broomfield Reservoir, and the Halligan/Seaman Reservoirs are constructed, firm supplies will exceed projected demands through 2050 without the construction of the WGFP.

[57] The "Healthy Rivers Alternative" is an alternative to NISP that was developed by the Save the Poudre and Western Resource Advocates. The Healthy Rivers Alternative estimates the potential for water conservation and rotational fallowing of agricultural lands to provide future water supplies.

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15	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Conservation:** The reductions in per capita water use modeled above reflect reasonable and attainable goals for project participants. While nearly all WGFP participants have adopted the 1992 National Energy Policy Guidelines (required), few have gone beyond these basic national requirements to promote indoor efficiency, despite existing technologies—readily available in the marketplace—that save more water. Many of the participant utilities have implemented education and outreach measures that inform customers about the importance of water efficiency. However, many lack conservation measures that go beyond education. For example, rebates provide incentives for customers to use water more efficiently and regulations require wise water use. Conservation measures like these help to further increase efficiency, improve behavioral practices, and educate the public. The combination of multiple measures greatly improves the overall effectiveness of any conservation program. Furthermore, public perception of water conservation has drastically changed in areas where education and other measures—such as incentives, regulation and conservation pricing—are present. The DEIS claims in §1.6.2.3 that water use reductions since 1988 indicate that conservation efforts have been successful. However, it does not mention that during this time many communities became fully metered, drastically reducing levels of use and that this conservation measure is likely the cause of the large reduction in use.[58] In truth, few participants in the WGFP have comprehensive conservation programs in place, and it is likely that implementation of further conservation measures will lead to additional reductions in use. Furthermore, conservation measures have proven to be cost effective and a source of real water savings.[59] Indeed, many studies have shown that conservation is not only cost effective, but is often less expensive per acre-foot than traditional supply development.[60] In the fall of 2007, WRA completed a report—*Front Range Water Meter: Water Conservation Ratings and Recommendations for 13 Colorado Communities*—that provides useful information for analyzing levels of water use and conservation programs in many WGFP cities. Much of the data in the pages that follow rely upon the *Water Meter* and data therein that were provided directly from water utilities. All WGFP participants have implemented some sort of demand-side management measures aimed at reducing water use. Conservation measures help to increase efficiency, improve behavioral practices, and educate the public. The combination of multiple measures greatly improves the overall conservation program. Because there are [58] U.S. Bureau of Reclamations. Windy Gap Firming Project Draft Environmental Impact Statement. August 2008. §1.6.2.3, pg 1-16 [59] Western Resource Advocates, *Smart Savings: Water Conservation Measures that Make ¢ents*. 2008. http://www.westernresourceadvocates.org/media/pdf/Smart%20Savings%20Water%20Conservation.pdf [60] Colorado Water Conservation Board, Colorado's Water Supply Future: State Wide Water Supply Initiative Phase 2. November, 2007. Table 2-1. http://cwcb.state.co.us/NR/rdonlyres/C65D6406-3EE0-4E44-9C5E-E1655D814CB8/0/S2_ConservationEfficiency.pdf 18	15. WGFP Participants have varying levels of conservation programs currently in place. The conservation programs of these Participants include measures aimed at different types of customers and water uses. The Purpose and Need Report and Appendices (ERO and Harvey Economics 2005) discuss the conservation measures in place for each Participant. In addition, Section 1.6.2.3 and Section 1.7 of the FEIS provide updated information on Participant water conservation practices. The conservation programs of each Participant, including the number and type of measures, enforcement of ordinances, and tracking capabilities are based on a number of entity-specific factors, including budget, the structure of the customer base and the types of water demands served. These programs are unique to each entity. Since Table 2 from Comment No. 13 was prepared, the cities of Evans and Greeley have finalized their conservation plans and have received CWCB approval of those plans. As outlined in Table 2, approval of conservation plans is in progress for several other Participants. These actions indicate that the WGPF Participants are serious about creating conservation goals and implementing conservation measures. These programs continue to evolve and move forward, and are required by the CWCB to be updated every 7 years. Greeley's water use data, as well as that of other WGFP Participants, has shown a downward trend in recent years (see Appendices to Purpose and Need Report). This may be due, in part, to conservation measures, but may also be due to other factors, such as weather and economic conditions. Many entities have not been able to determine the amount of water savings that results from any one measure or program.

Com-ment	Letter #1138	Response
15	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 a multitude of conservation measures utilities can adopt, we look closely at five key criteria: • Incentives/rebates (including giveaways) • Ordinances/rules • Education • Commercial and industrial (C&I) programs • Xeriscape Greeley has all of the five criteria included in their conservation programs but relatively low levels of penetration for their incentive based programs, increasing levels of unaccounted for water, and only a uniform water rate structure that provides no incentive for customers to use water more efficiently. Some communities (e.g., Broomfield, Erie, Louisville, Loveland, Lafayette and Fort Lupton) have conservation ordinances, but appear not to track or enforce the regulations, diminishing their effectiveness. In particular, ordinances dealing with new growth are essential, especially in cities experiencing extremely rapid growth. Longmont, Loveland, Lafayette and Louisville all use four out of five of the above categories in their conservation measures. All lack a commercial and industrial program, something that needs to be addressed as these water use sectors grow. Furthermore, while the communities listed do utilize four out of the five conservation measures, their programs are not robust; with more effective implementation, the communities can attain significant water savings. For instance, Longmont and Louisville are the only two of these four communities that offer rebates. Yet their level of penetration is quite low, in some instances reaching less than 1% of their service area population. Fort Lupton, Evans, Broomfield, and Berthoud all have limited measures in place, and rely heavily upon ordinances, but these are not often enforced or tracked. While the number of measures a community has adopted is not necessarily an indicator of conservation program success, communities with more measures in place typically have better tracking and enforcement in place. Tracking provides an accurate picture of what percentage of the population is being reached by their measures.[61] The above communities also have extremely limited education measures in place, do not have dedicated staff or budget to properly carry out these measures, and do not have incentive based measures or rebates in place. A huge potential exists for additional reductions in per capita demand through the implementation of more progressive policies and programs. Adopting improved rate structures, incentives and enforced regulations and a well executed education program can result in significant cost savings for the water providers. [61] Western Resource Advocates, *Front Range Water Meter*. November, 2007. 19	

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If WGFP beneficiaries secure water at a storage-to-yield ratio of 4-to-1 (typical in Colorado), they can expect to pay $9,600 per acre-foot of firm yield,[62] not including the potential for additional costs to store this water locally and projected construction cost increases for these structural features. Many conservation measures are far less expensive. A 2004 report estimates the cost of implementing a progressive water rate structure at $6000/AF.[63] A water conservation sub-committee carrying out Phase II of SWSI has developed expected costs of $2,000-7,000/AF for landscape audits, water loss reduction, and many other programs.[64]

16

Levels of Water Use and a "Reasonable" Standard

Through an analysis based on data presented in the P&N and provided by water utilities on Colorado's Front Range, WRA calculated that average water use for a large sample of Front Range communities is 177 gpcd and the median is 184 gpcd. These figures were calculated using data from water providers from 1998-2003, the same years used in the WGFP P&N. The average and median offer a much more accurate representation of recent trends in Front Range water use by proposed WGFP beneficiaries and similarly-situated communities. *See* Table 4, below.

Table 4. 1998-2003 Front Range Municipality Consumption Data (GPCD)

Front Range GPCD Total (gal)	1998	1999	2000	2001	2002	2003	AVG
Westminster			191	191	170	156	177
Longmont	215	195	213	201	196	180	200
Denver	213	203	221	211	192	166	201
Fort Collins	196	185	211	198	183	154	188
Greeley	218	197	220	201	192		206
Loveland	182	165	204	190	160	136	173
Broomfield	191	192	225	203	210	189	202
Lafayette	151	137	148	147	102	126	135
Louisville	183	178	193	182	133	157	171
Superior	149	127	131	125	128	120	130
Aurora	173	171	192	184	168	127	169
Multi-city Avg.	187	175	195	185	167	151	**177**
						Median =	**184**

[62] Based on a cost estimate of $2,400 per acre-foot of storage, an estimate provided Northern Colorado Water Conservancy District.
[63] Mayer, Peter et al., *National Multiple Family Sub-metering and Allocation Billing Program Study*. Aquacraft, Inc., 2004.
[64] Colorado Water Conservation Board, Colorado's Water Supply Future: State Wide Water Supply Initiative Phase 2. November, 2007. Table 2-1. http://cwcb.state.co.us/NR/rdonlyres/C65D6406-3EE0-4E44-9C5E-E1655D814CB8/0/S2_ConservationEfficiency.pdf

16. A number of WGFP Participants are small, rural water providers that differ from the larger cities indicated in Table 4 in terms of characteristics such as the distribution of customer types and density; land and water uses; and system infrastructure. Table 4 does not include any water providers that can be described as similar to the WGFP's rural providers or that would reflect water use patterns similar to those types of providers.

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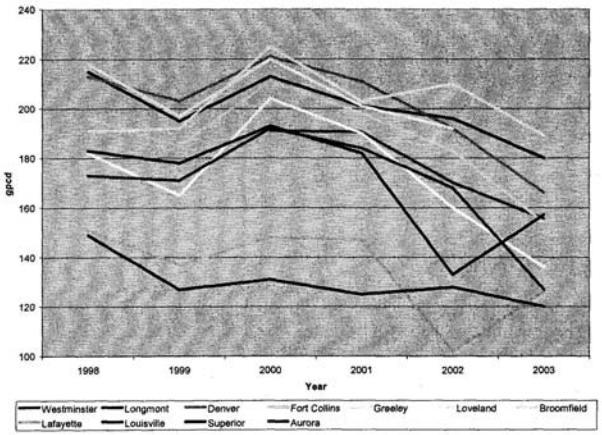
16	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 Based on the actual Front Range data depicted above, it appears cities fall into two fairly distinct groupings: those that have a 1998-2003 average gpcd of 190 or below, and those with a gpcd of 200 or above. The latter group—which includes Broomfield, Greeley and Longmont—clearly sticks out as having relatively high per capita use. The P&N should reflect this distinction and incorporate 25% per capita use reductions into these cities' projected water demand. The colored lines in Figure 3, below, depict the same data graphically. The trend since 2000 for most Front Range communities is decreasing per capita use. For example, the city of Westminster has seen a steady decrease in their system-wide per capita water use over the last five years. Westminster's 2000 gpcd was 191 while use in 2005 was 154 gpcd—a decrease of 24%.[65] Other cities experienced similar drops. This trend is, in part, the result of replacement of inefficient indoor fixtures, the adoption of city wide conservation goals, and the implementation of rate structures that encourage conservation. Changes such as these result in permanent water savings and do not rely upon behavioral adaptation that can dissipate after a drought is over. As a result, some Front Range cities, like Denver, have adapted their planning, using lower levels of consumption to forecast future demand.[66] **Figure 3- System Wide Consumption of Front Range Municipalities**  [65] City of Westminster Department of Public Works and Utilities. [66] Denver Water Board, Integrated Resource Plan materials and handouts, December 7, 2005 21	

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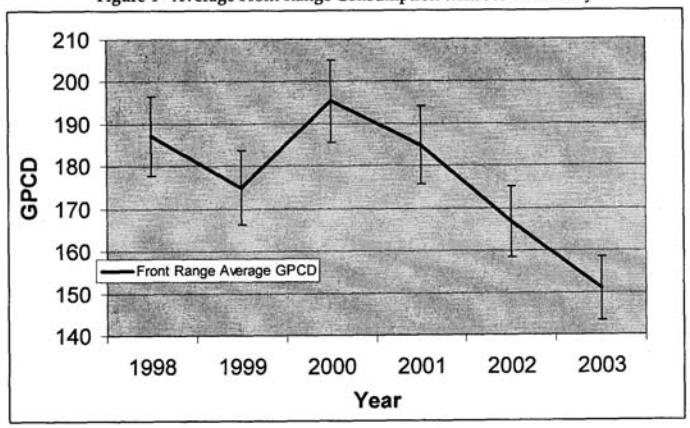
16	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Figure 4 - Average Front Range Consumption with 5% Variability**  Figure 4, above, represents the average system wide per capita consumption for municipalities along the Front Range from 1998 through 2003. The brackets provide an illustration of possible variations in average levels of use given a 5% shift in either direction. Even if a 5% increase in use were to occur, the average of all Front Range cities examined is well below the "reasonableness" standard used in the WGFP DEIS.	
17	**Participants' System Wide Loss is Unreasonably High** The WGFP participants collectively have an average rate of "unaccounted for water" of nearly 14%. This not only exceeds the American Water Works Association reasonableness standard of 10%, it is also drastically higher than other nearby communities. Fort Lupton, Loveland and Louisville all have system loss levels that exceed the 10% threshold, by as much as 7%. In contrast, Berthoud and Broomfield have achieved very low levels of unaccounted for water, 2.6 and 3% respectively.[67] Reducing average system wide loss levels for all WGFP participants to five percent would provide an additional 7,800 to 9,000 acre-feet per year – that is 25-29% of the expected WGFP firm yield.[68] It is incumbent upon cities that are considering construction and payment for a large new trans-mountain diversion project to first efficiently use water that has already been developed. [67] Western Resource Advocates, *Front Range Water Meter: Water Conservation Ratings and Recommendations for 13 Communities*, 2007, at 15. [68] Calculation by Western Resource Advocates based on data on average system loss §1.6.2.2 (pg 1-14) of the DEIS. Range is based on 2003 low of 90,000 AF loss and 2000 high of 104,400. Savings is the difference between 13.7% loss and 5%. 22	17. The comment oversimplifies the complexity of "unaccounted for water." The conveyance, treatment, and distribution losses experienced by each of the Participants depends on many factors, including the type and location of water sources and the system-wide operation of facilities and infrastructure. Water providers may not have any control over a number of these components and, therefore, may not be able to influence any reduction in some types of losses. For example, many Participants own shares in agricultural ditch companies or similar organizations that pass along their losses. The Purpose and Need Report includes a discussion of the available literature regarding water losses, including AAWWA reports (p. 20), and states that "water losses are not universally measured, nor is common terminology applied." This makes comparing losses among water providers, and determining benchmarks, a difficult exercise. Studies indicate that utilities experience a wide range of losses (from 10% to 25%), with a central tendency of between 15% and 16%. Losses are calculated consistently for each of the WGFP Participants in the EIS and fall within the range of the studies noted.

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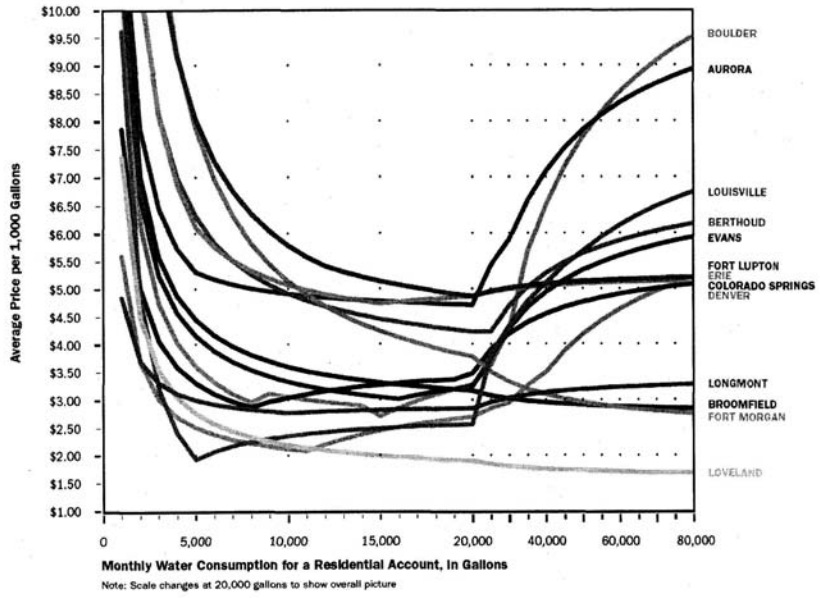
18	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Proponents' Water Rate Structures are Ineffective** Many WGFP participants have ineffective pricing structures. Other participants' price structures send no conservation price signal at all. In order for inclining block rates to be an effective conservation tool consumers must understand that the more water they use the more they will pay per unit; this is reflected in a steep positive slope on the average price curve. As illustrated in Figure 5, below, many WGFP participants such as Fort Lupton, Broomfield, Longmont and Loveland lack an effective pricing structure. Under an effective rate structure, the price per AF will rise sharply as use increases, as seen with Boulder, Aurora, Louisville, Berthoud, Denver and Evans in Figure 5. An ineffective pricing structure will rise only faintly (Fort Lupton, Longmont); not at all; or decrease as use increases, as seen in Broomfield and Loveland in Figure 5. **Figure 5: Average Price Curve[69]**  [69] Western Resource Advocates, *Front Range Water Meter*. 2007, at 16. 23	18. Pricing is indeed an effective conservation tool and is one of the evaluation factors used by the Colorado Water Conservation Board staff in evaluating and approving water conservation plans. As mentioned in the responses to previous comments, each participant will be required to have an approved water conservation plan in accordance with the requirements of Water Conservation Act of 2004, as amended, prior to the delivery of water as a result of the WGFP.

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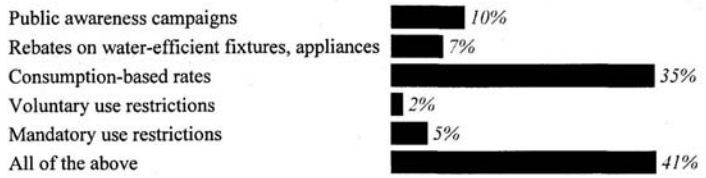
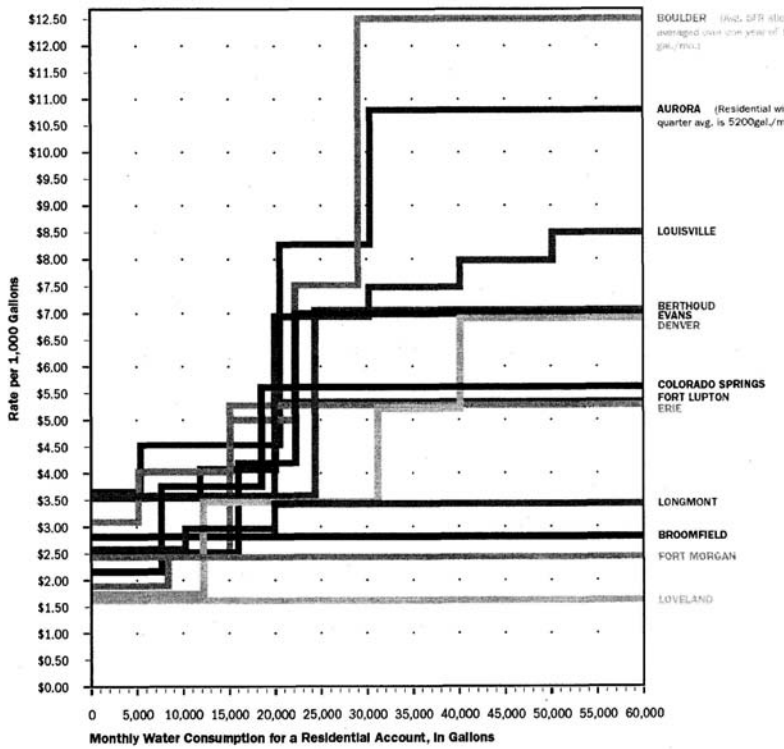
18	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 The most important element that will alter the effectiveness of any conservation price signal is the fixed monthly service charge. If this fee is a large percentage of the bill, then consumers see little incentive to conserve because regardless of how much they reduce their consumption they will still have to pay a large service fee. In other words, large service charges penalize low volume users and remove incentives to conserve water. As shown in Table 5, below, many WGFP participant cities have a fixed service charge that is an extremely high percentage of a bill for 10,000 gallons of consumption—thus decreasing or even negating the conservation price signal. **Table 5: Service Charge Percentage of Bill at 10,000 Gallons[70]** See table below. Conservation pricing is an important component of any effective demand management program and should be utilized in any community seeking new sources of water. In fact, in a recent poll by the American Water Works Association, responders stated that conservation oriented rates, or consumption-based rates, were the best individual mechanism to get customers to use less water.[71] *See* Table 6. [70] Western Resource Advocates, *Front Range Water Meter*. 2007, at 15. [71] American Water Works Association, Results of Survey "Quick Poll" *What's the best way to get customers to use less water?* Accessed 8/22/08. http://www.awwa.org/QuickPollResults.cfm?itemnumber=1663. 24	

	Total Bill at 10,000 Gal.	Service Charge	% Service Charge of 10,000 Gal. Bill
Aurora	$49.00	$8.50	17.35%
Berthoud	$49.07	$13.87	28.27%
Boulder	$28.95	$8.55	29.53%
Broomfield	$35.83	$8.53	23.81%
Colorado Springs	$31.91	$5.70	17.86%
Denver	$21.07	$3.87	18.37%
Erie	$50.65	$15.00	29.62%
Evans	$33.15	$8.25	24.89%
Fort Lupton	$57.80	$22.50	38.93%
Fort Morgan	$51.34	$27.34	53.25%
Longmont	$27.60	$2.30	8.33%
Louisville	$23.40	$9.60	41.03%
Loveland	$21.75	$5.75	26.44%

Com-ment	Letter #1138	Response
18	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Table 6: Result of AWWA Quick Poll[72]**  Municipalities with the most effective conservation oriented rates—i.e. structures that clearly communicate *the more you use the more it will cost per unit*—are the communities who provide an initial block of water at a low and affordable rate, and then increase rates noticeably from one block to the next. Far too many WGFP providers have an inclining block rate structure that has a negligible price increase as marginal water use increases (Figure 6); the result is that consumers do not notice that their unit cost is greater than before and thus have no incentive to conserve. This is the case with Fort Lupton, whose large service charge and minimal consumption price increases from one tier to the next, resulting in a rate structure that acts – in essence – as a flat rate structure and provides no price signal. SEE NEXT PAGE [72] Id. 25	

Com-ment	Letter #1138	Response
18	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Figure 6: Marginal Rate Curve**[73]  19 **Conclusions for Section 3—Water Conservation and Efficiency:** Based on a close review of the P&N, the DEIS and, other relevant data, the underlying water use projections in the DEIS—and thus the "need" for the WGFP—are arbitrary and fatally flawed. The Bureau must amend the DEIS's underlying population and water demand projections; current figures are significant over-estimatations. This amendment must more accurately reflect consumption patterns specific to the Colorado Front Range, rather than using single-year data from communities in other states with [73] Western Resource Advocates, *Front Range Water Meter*. 2007, at 14. 26	19. As mentioned in the responses to other comments, Reclamation believes that the population estimates used in the EIS are accurate and consistent with estimates developed by the State of Colorado and others.

Com-ment	Letter #1138	Response
19	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 entirely different climates and levels of water use. More accurate average per capita use by Front Range cities—as well as the marked downward trend in recent years—substantially undercuts the need for the Windy Gap Firming Project during the proposed planning horizon. Updated data will allow individual cities to more accurately assess their need for WGFP, an expensive water supply option. This is particularly important in light of the recent economic downturn and housing foreclosures in many WGFP cities. Conservation and efficiency has not been adequately incorporated into WGFP participant's long term planning process and savings from demand management to date have been overstated. Prior to developing the WGFP, participants must adopt more aggressive conservation measures and goals. In a recent presentation, the Colorado Water Conservation Board assumed a 25% reduction in average per capita water use between 2000 and 2030.[74] WGFP communities must adopt, at a minimum, the State's conservation objectives. With this level of reduction, the project participants' existing supplies will meet demand through 2030. When the other proposed projects in the region are considered—NISP and its alternatives, Broomfield Reservoir, and Halligan/Seaman Reservoir—firm supplies will exceed participants' demands through 2050. In light of these other projects, the WGFP No Action alternative is the most reasonable. Incorporating many of the above-noted conservation measures would further strengthen participants' conservation programs and, consistent with the Reclamation Reform Act and state law, should be adopted prior to committing enormous financial resources to the proposed WGFP project.	
20	**4. Similar and Related Actions; Cumulative and Connected Impacts** The DEIS lacks adequate analysis of related actions—including "connected", "cumulative", and "similar" actions[75]—as well as cumulative and connected impacts from past, present, and reasonable foreseeable future projects. As discussed in our comments on the **National Environmental Policy Act**, above, identifying and evaluating these actions and impacts is a central component of NEPA. Courts are clear that action agencies often must examine several related actions inside a single NEPA document.[76]	20. CEQ regulations and case law provide clear guidance on the scope of a particular NEPA analysis with respect to possibly related actions. See 40 CFR 1508.25. Courts have provided guidance on whether proposed projects are sufficiently interrelated to qualify as "connected actions," which should be considered together in a single NEPA analysis. The courts have generally applied an "independent utility" test to determine if two activities are closely connected, evaluating whether each of the activities could be undertaken on their own (even if they would benefit each other), or whether they are inextricably linked to each other, or if they are similar projects being pursued by the same agency. The WGFP has utility independent of the other water projects mentioned in the comment or considered as part of cumulative impacts in the FEIS and, therefore, a single NEPA analysis of all of the projects is not required.

[74] Hecox, Eric. November 14, 2008. Presentation at the West Slope Joint Roundtable Meeting.
[75] 40 C.F.R. at §§ 1508.25, 1508.7, 1508.8.
[76] *Id.* The U.S. Court of Appeals for the Fifth Circuit held that in a cumulative impact analysis, an agency should consider "(1) past and present actions without regard to whether they themselves triggered NEPA responsibilities and (2) future actions that are 'reasonably foreseeable,' even if they are not yet proposals and may never trigger NEPA-review requirements. *See*, *Fritiofson v. Alexander*, 772 F.2d 1225, 1245 (5th Cir. 1985). The court noted that the applicable law "does not limit the inquiry to the cumulative impacts that can be expected from proposed projects; rather, the inquiry also extends to the effects that can be anticipated from "reasonably foreseeable future actions." *Id.* At 1243. Similarly, the U.S. Court of Appeals for the Ninth Circuit has specifically required analysis of activities on both public and private land, since both may impact federal resources; the court also found cumulative impacts analysis insufficient where it did not include foreseeable projects in the same geographica1 region. *See*, *Natural Resources Defense Council v. U.S. Forest Service*, 421 F.3d 797, 815-16 (9th Cir. 2005); *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800 (9th Cir. 1999).

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Com-ment	Letter #1138	Response
21	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Connected and Similar Water Projects** The inter-connectedness of WGFP with the existing Colorado-Big Thompson (CBT) project, including potential legal hurdles to such inter-connectedness, has not been adequately analyzed in the DEIS. The inter-connections are vividly illustrated by **Figure 2-6. Chimney Hollow Reservoir connection schematic** (DEIS at 2-21) and discussed in some detail in **Section 2.4.2 (Operations,** DEIS at 2-24). Not only are the projects' facilities intimately linked, but under the prepositioning concept, their waters are commingled: Prepositioning would involve the use of available Adams Tunnel capacity to deliver C-BT water into Chimney Hollow to occupy storage space that is not occupied by Windy Gap water...The delivery of C-BT water from Granby Reservoir into Chimney Hollow would create space for Windy Gap water in Granby Reservoir. When Windy Gap water is diverted into Granby Reservoir, the C-BT water in Chimney Hollow would be exchanged for a like amount of Windy Gap water in Granby Reservoir. (DEIS at 2-24) The WGFP DEIS notes that: Because the Proposed Action includes the storage of C-BT water in a new Firming Project facility (a concept referred to as prepositioning), Reclamation also will need to make a decision regarding accounting changes in the C-BT system to allow water storage and exchange between the two projects to occur. Implementation of prepositioning may require modification or replacement of the existing conveyance and storage contract between Reclamation, the Subdistrict, and the NCWCD. (DEIS at 1-42) Discussions about any potential contract approvals have not been completed; indeed, it is unclear if they even have been started. Since such approvals are a prerequisite for many elements of the Proposed Action, the WGFP DEIS analysis is simply not yet complete. These contract discussions and any "contract conditions" must be subject to public review and comment.	21. Reclamation expects to complete the NEPA process with a Record of Decision (ROD) no sooner than 30 days after the Final EIS is made available to the public. The ROD will document Reclamation's selection of an alternative for the WGFP and discuss the factors, including C-BT Project water rights that were considered in making that decision. If the selected alternative includes issuing a water contract, Reclamation intends to determine whether the proposed contract complies with Senate Document 80, and other applicable authorities, prior to execution of the proposed contract. See the discussion added at the beginning of Section 1.10.2 of the FEIS.
22	Further, there are significant questions about whether the proposed use of CBT facilities is allowed under existing federal law. The DEIS notes Prior to entering into a contract that would allow use of C-BT excess capacity, Reclamation must determine that the excess capacity contract is consistent with the provisions of Senate Document 80 (SD 80) and Reclamation's authority under Section 14 of the Reclamation Project Act of 1939 (43 U.S.C. § 389). This determination will be made available at a later time and is not part of this EIS. (DEIS at 1-42) 28	22. See response to Comment No. 21.

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22	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 There is, however, no support for the statement that these issues can simply be dealt with "at a later time" or that they are "not part of this EIS." To the contrary, it is critical that any uncertainties over compliance with Senate Document 80 and the 1939 Reclamation Project Act be resolved before finalizing the EIS, as the outcome could dramatically alter the EIS's analyses and conclusions. Senate Document 80 states that the Colorado Big-Thompson Project "must be operated in such a manner as to most nearly affect the following primary purposes: 1. To preserve the vested and future rights in irrigation. 2. To preserve the fishing and recreational facilities and the scenic attractions of Grand Lake, the Colorado River, and the Rocky Mountain National Park. 3. To preserve the present surface elevations of the water in Grand Lake and to prevent a variation in these elevations greater than their normal fluctuation. 4. To so conserve and make use of these waters for irrigation, power, industrial development, and other purposes, as to create the greatest benefits. 5. To maintain conditions of river flow for the benefit of domestic and sanitary uses of this water." DEIS at 1-42. The WGFP's proposed prepositioning, because it will allow more water to be pumped from Windy Gap into Lake Granby and from Granby into Grand Lake, will increase sediment and nutrient loads in the latter, aggravating an existing problem and violating primary purpose #2, above, regarding preserving fishing and recreational facilities. Furthermore, there are other features of prepositioning that must be considered as they relate to Senate Document 80. Prepositioning will require storage of C-BT water in Chimney Hollow where, at some point, it will be converted to Windy Gap water. But Senate Document 80, in its project description, identifies only three Front Range Storage facilities – Carter Lake, Horsetooth Reservoir, and Arkins Reservoir. No other storage facilities are mentioned. While Reclamation does indicate that "implementation of prepositioning may require modification or replacement of the existing conveyance and storage contract between Reclamation, the Subdistrict, and the NCWCD" (DEIS, page 1-42), it is far from clear whether, under Senate Document 80, storing C-BT water would be allowed at all in Chimney Hollow. Reclamation has defended the prepositioning concept elsewhere, by using Boulder Reservoir as an example of a Front Range reservoir not mentioned in Senate Document 80 that stores C-BT water. This example is not compelling, however, in that Boulder Reservoir, a terminal facility, is storing C-BT water for owners of C-BT shares. Other groups, most notably Grand County, the Colorado River Water Conservation District, and Northwest Colorado Council of Governments, have raised a host of additional issues related to prepositioning (*see, e.g.,* letter to Richard K. Aldrich, 29	

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22	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 Office of Solicitor, March 22, 2004). For example, these groups argue that prepositioning, because it depends on storing C-BT water in Chimney Hollow, eventually exchanging it for Windy Gap water and thereby increasing the yield of WGFP, gives Windy Gap the benefit of some of the 52,000 AF of replacement water in Green Mountain Reservoir, a situation never contemplated by Senate Document 80 and, therefore, illegal. The DEIS must review whether the operation of the project would violate any of the provisions of Senate Document 80 or any other agreement or requirement, e.g., the Blue River Decrees, that affect the operation of the C-BT Project. In the DEIS, Reclamation agrees that it needs to do this, but suggests this will only occur after the completion of the EIS (DEIS, pages 1-42 & 1-43). We believe strongly that the EIS is the appropriate place to identify and analyze all of the existing agreements and constraints that pertain to Windy Gap and disclose to the public whether there will be a need to modify them in order to operate the project. In addition, the EIS must include in the baseline conditions a summary of all in-stream flow and by-pass flow requirements that control the affected streams, and must evaluate the impacts to those flows and delivery requirements. The DEIS's failure to identify and analyze all existing agreements and constraints is repeated inside the hydrologic analysis (*see* page 36 of these comments). There, the DEIS provides only averaged or snapshot assessments and fails to assess the full impact of hydrologic regime changes at a temporal and spatial resolution sufficient to evaluate habitat, aquatic, and morphologic impacts.	
23	**WGFP Must Comply with the Federal Water Supply Act** The WGFP must comply with the federal Water Supply Act (WSA), which will require congressional approval for the proposed inter-connected use of the C-BT. The WSA requires congressional approval for major conversions of existing "Federal navigation, flood control, irrigation, or multiple purpose projects" to municipal and industrial water uses. *See* 43 U.S.C. § 390b(a), (b), (d). Determining whether a project's uses are modified focuses on the *purposes* for which the federal reservoir is used. *See Southeastern Federal Power Customers, Inc. v. Geren*, 514 F.3d 1316, 1324 (D.C. Cir. 2008). Modification of a federal reservoir project to include municipal and industrial uses, regardless of cost, requires congressional approval where such modification would: "[(1)] seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or . . . [(2)] involve major structural or operational changes . . . ." 43 U.S.C. § 390b(d). As provided in SD 80, Congress authorized construction of the CBT to bring water from the Upper Colorado River basin to Colorado's eastern slope to benefit lands in need of "supplemental irrigation" and to meet the "primary purposes" noted previously. The WGFP's proposed use of CBT, especially through the proposed prepositioning concept, would (1) seriously affect "the purposes for which the project 30	23. See response to Comment No. 21.

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23	was authorized, surveyed, planned, [and] constructed" and (2) constitute a "major structural or operational change" of the CBT project. Thus, pursuant to the WSA, the WGFP requires congressional approval. The DEIS must be revised to address this.	24. As mentioned in other responses, the purpose of the WGFP is not to develop new water supplies for the participants but to make better use of existing supplies that are available through the use of existing Windy Gap water rights. Participants that are also involved in other project that develop new water supplies have identified future water needs that will require more that what will be available as a result of the WGFP. Section 1.7 of the FEIS includes additional information on the Participants' anticipated yield from the WGFP and other sources in relation to their overall future water needs.
24	**The DEIS Fails to Analyze All Similar and Cumulative Actions and Impacts** An additional issue, also noted only briefly in the DEIS, is the overlap in the list of NISP and WGFP participants. *See* Table 3, at page 14 of these comments. For example, Erie, Evans, Fort Lupton, Lafayette, and Central Weld County Water District are involved in NISP and WGFP. If any of these communities' needs could be met through another project or projects (or an alternative to one of the currently proposed projects) it could obviate the need for their participation in WGFP. The above example highlights a much more important issue: **the DEIS fails to discuss the connection between the WGFP and many other proposed projects that would either provide water to satisfy the same or similar northern Front Range water demands and/or tap into water from the Upper Colorado River**. The WGFP and these other proposals cannot be analyzed in isolation; to do so runs afoul of NEPA's requirement to analyze "cumulative" and "similar" actions.[77] While the DEIS does discuss some "water-based" related actions (DEIS at 2-42), the list is far from complete.	
25	Three distinct elements must be analyzed. First, the regional water demands of many northern Colorado Front Range communities must be considered in a single NEPA process, rather than segmented into separate NEPA documents on separate project proposals, headed by separate federal agencies. Only when considered together can the applicant and lead federal agency be clear about the need for the currently proposed project, in light of other projects designed to meet similar needs.	25. The WGFP was initiated to firm the yield of the existing Windy Gap Project. The WGFP has a distinct purpose and need associated with addressing the deficiencies of the original Windy Gap. Alternatives for meeting project objectives were developed and evaluated. The WGFP has no interdependence or connection with other Front Range water projects, although some WGFP Participants are also participants in other water projects because the WGFP would not satisfy all of their future water needs. There is no geographic overlap among Front Range projects that would result in cumulatively significant impacts.
26	Second, the DEIS also fails to analyze the direct, indirect, cumulative, and connected impacts that would result from new growth (e.g., commercial and urban development) facilitated by WGFP. NEPA regulations, specifically 40 C.F.R. §1508.25, and court decisions make clear that environmental analyses pursuant to NEPA must consider future actions that are "reasonably foreseeable" even if they are not yet proposals and, by themselves, may never trigger NEPA-review requirements.[78] This includes activities on both public and private land[79] and includes land-use and development decisions to be made by the project participants.	26. The WGFP would support the Participants' abilities to provide water to future customers within their service areas, but would not promote or encourage growth. The Participants initiated this Project because of the need to meet anticipated future water demands that could not be met by the Windy Gap Project as it is currently configured. There is no evidence to suggest that the WGFP would stimulate growth.
27	Third, the WGFP, other project proposals, **as well as existing projects**, have cumulative impacts on the Colorado River that must be fully analyzed. For example, the existing Windy Gap project, CBT project, and Moffat Tunnel all divert large volumes of water from the Upper Colorado River, with consequent impacts on streamflows, the environment, recreation, wastewater dilution flows, opportunities for municipal growth, and the quality of life on the western slope (for residents there as well as visitors). Recent	27. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no

[77] 40 C.F.R. §1508.25(a)(2). *See Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985).
[78] *Fitiofson v. Alexander*, 772 F.2d 1225, 1245 (5th Cir. 1985).
[79] *Natural Resources Defense Council v. U.S. Forest Service*, 421 F.3d 797, 815-16 (9th Cir. 2005).

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27	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 proposals, including the WGFP and Moffat Tunnel Expansion, would only add to these impacts. NEPA is clearly designed to require analysis of these cumulative impacts, but the WGFP DEIS does not yet undertake sufficient analysis.	shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
28	**5. Construction Costs** Over the last five years, construction costs have risen dramatically. These costs have been driven upwards by fuel costs; the cost of raw materials such as steel, cement, and precious metals; and labor costs. Although in the last few months, construction costs have fallen slightly as a result of lower fuel costs and slowing demand, they have not declined to pre-2005 levels. Higher construction and capital costs provide an additional incentive for cities to invest in conservation and water use efficiency measures. As noted in WRA's comments on Conservation and Efficiency, each of the Windy Gap participant cities could achieve additional water savings. Various factors, including rising fuel costs and rising worldwide demand, have driven construction costs upward considerably in recent years. These cost increases have exceeded the average inflation rate. As a result, many public works projects have, in the end, cost substantially more than originally projected. In the following sections, we provide a methodology and rationale for the Bureau of Reclamation to re-estimate the capital costs of the WGFP. We recommend that Reclamation re-evaluate conservation and efficiency measures, many of which are cost-competitive with the updated capital costs of the WGFP. **Background: Commodities and Labor Price Trends** The price of key elements in construction – iron, steel, cement, and copper – escalated dramatically between 2003 and 2007. Although the price escalation slowed in 2008 and fell slightly in the last few months, prices are not expected to fall to the levels seen during the 1990s or early 2000s. The Producer Price Index (PPI), developed by the Bureau of Labor Statistics, provides a benchmark for the cost of various commodities and industries. Between December 2003 and January 2008, the PPI for inputs to construction rose 30.4%, while the Consumer Price Index (CPI) rose 14.5%.[80] The cost increases have been driven in large part by increasing demand for raw materials in China and other rapidly developing countries; these countries' demand is not likely to wane in future years. (Table 7 presents annual price escalation rates of key commodities from 1986 to 2007; Figure 7 and Figure 8 illustrate the PPI for major inputs to construction and the CPI.) [80] Simonson, Ken, March 2008. *AGC Construction Inflation Alert*, The Associated General Contractors of America, http://www.agc.org/galleries/econ/AGC_CIA08_webFinal.pdf. 32	28. Actual construction costs will likely be higher than the 2005 estimates in the FEIS; however, infrastructure construction costs for many large projects have decreased substantially in the last year because of the economy. Recent economic downturn may affect the ability of some Participants to finance the WGFP in the near future. The Participants will undoubtedly carefully consider the financial feasibility of the Project before they proceed with the WGFP if it is approved. The WGFP Participants have been and will be improving their conservation programs over time regardless of the decision on the WGFP. Additional water conservation measures and firming existing sources of water supply are key components of meeting current and future water supplies for all of the Participants.

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Table 7. Annual Price Escalation of Key Construction Commodities.[81]

Commodity	Average Annual Escalation from 1986 – 2003	Average Annual Escalation, Dec. 2003 – April 2007	Escalation during the period Dec. 2003 – April 2007 As a Ratio of Recent Historic Average
Copper	3.30%	69.20%	21x
Cement	2.70%	11.60%	4.3x
Iron and Steel	1.20%	19.60%	16.3x
Heavy Construction	2.20%	10.50%	4.8x

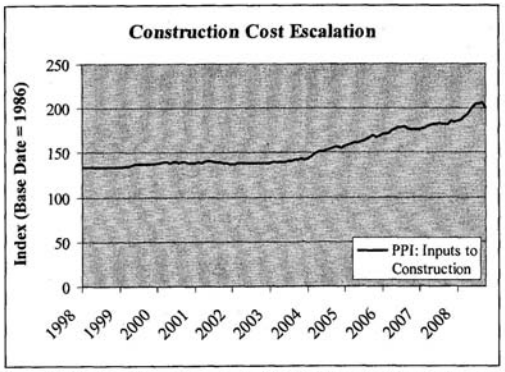

Figure 7. The Producer Price Index (PPI) of Inputs to Construction has risen sharply since 2004. The rise has outpaced inflation (see the Consumer Price Index (CPI) in the following figure). Data from the U.S. Department of Labor, Bureau of Labor Statistics. Retrieved on November 20, 2008.

[81] Table adapted from Synapse Energy Economics, Inc, 2008. *Don't Get Burned: The Risks of Investing in New Coal-Fired Generating Facilities*. Data from the Appalachian Power Company, testimony to the West Virginia Public Service Commission.

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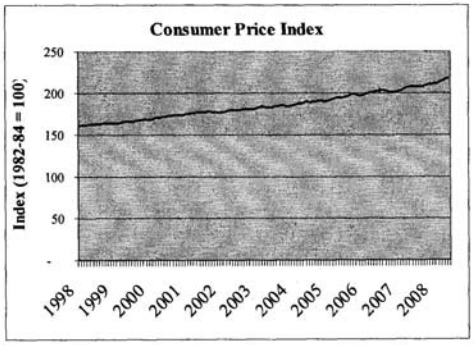

Figure 8. Consumer Price Index (for average cities, all commodities) over the period 1998 – 2008. The CPI serves as a benchmark for inflation. Data from the U.S. Department of Labor, Bureau of Labor Statistics. Retrieved on August 13, 2008.

Accurately estimating capital costs is essential – typically, agencies use the CPI or alternate measures of inflation to project future costs. As shown in Figure 7 and Figure 8, however, the cost of construction materials has escalated at a much faster rate than inflation. According to the chief economist of the Associated General Contractors of America, the growing disparity between the CPI and the PPI for construction materials "has meant that public owners have increasingly had to defer, redesign or cancel projects for which they did not budget enough money in 2003 or 2004."[82]

The experiences of other agencies in recent construction projects underscore the importance of accurately estimating costs. Construction costs for the Elkhead Reservoir expansion, completed in 2007 in Western Colorado, were originally estimated at $20 million.[83] By the time of completion, total costs had escalated to $30 million, 50% more than the original cost.[84] Similarly, the State of Utah estimated the capital costs of its proposed Lake Powell pipeline at $585 million in 2005.[85] In June of 2008, the state published a revised construction cost estimate of $1.064 billion – almost double the original cost, just 3 years later.[86]

In addition to the cost of raw materials, the cost of labor has risen, and is projected to continue rising. Wages for non-residential construction projects are projected

[82] Simonson, Ken, March 2008.
[83] Roehm, G. W. 2004. Management plan for endangered fishes in the Yampa River Basin and environmental assessment. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6). Denver. p. 75.
[84] Colorado River Water Conservation District, Elkhead Reservoir Enlargement Project website, http://www.crwcd.org/page_28, viewed August 14, 2008.
[85] Water Delivery Financing Task Force, September 2005. Water Delivery Financing Task Force Report: Financing the Lake Powell Pipeline and Bear River Projects.
[86] Utah Department of Water Resources, June 2008. *Lake Powell Pipeline Opinion of Probable Costs*, http://www.water.utah.gov/LakePowellPipeline/ProjectUpdates/default.asp.

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29	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 to rise 4.5 – 5.5% in 2008, and 5 – 6% in subsequent years. Furthermore, large, heavy industrial projects are likely to have the greatest increases in labor costs. This is an essential factor in estimating total construction costs, as labor typically comprises half of a project's total costs.[87] **A Reasonable Revised Construction Cost Estimate** To underscore the impact of rising construction costs, we present revised estimates of the costs of Reclamation's proposed action. The Bureau of Reclamation estimated the cost of its proposed action at $223.4 million (2005 dollars).[88] We estimate construction costs under several alternate scenarios: 1.) A Baseline scenario, in which construction costs are escalated at the rate of inflation (assumed to be 3.15% annually, the rate of increase of the Consumer Price Index from 2004 to 2008). 2.) The Bureau of Reclamation's composite index for cost escalation over the period 2004 – 2007 (6.0% annually). 3.) An "Elkhead Reservoir" scenario, in which total project costs are 50% higher at project completion than original estimates. For all alternate scenarios, costs are in 2008 dollars. The impact of higher rates of cost escalation is substantial, as shown in Table 8, below. Given the Bureau's own observed cost increases over the last four years, the proposed action could cost an additional $43 million dollars (19% more than the Draft EIS estimate), if construction were to begin in 2008. By the time construction could likely begin (in 2010 or later), costs will be even higher. This estimate compares favorably with a statement in the Draft EIS: "Reservoir construction costs are estimated to have increased about 17 percent since the 2005 cost estimate."[89] We suggest the escalation rate of 6.0% annually reflects a conservative estimate – the cost of steel rose at 7.4% annually, and the cost of cement rose almost 10.2% annually. For reference, Table 9, below, lists recent annual cost escalation rates for different types of projects for the Bureau of Reclamation. Before issuing its Final EIS, the Bureau should provide project participants with revised cost estimates. These costs should be compared to the cost of non-structural alternatives, including conservation and other short or long term leasing agreements. [87] Simonson, Ken, March 2008. [88] Draft EIS, p. 2-55. [89] Draft EIS, p. 2-25. 35	29. See response to Comment No. 28.

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Table 8. Estimated WGFP costs under different price escalation scenarios. All scenario cost estimates are in 2008 dollars, except the Draft EIS estimate (which is in 2005 dollars).

Escalation Rate Scenario	Annual Escalation Rate	Real Escalation Rate*	Total Project Cost (2008 dollars)	Difference, Scenario Estimate – Draft EIS Estimate	Difference, as a percent of the Draft EIS Estimate
Reference Point: Draft EIS Estimate	-	-	$ 223,400,000†	-	-
1. Baseline Escalation – CPI	3.15%	0%	$ 245,200,000	$ 21,800,000	10%
2. Bureau of Reclamation's Observed Escalation	6.0%	2.85%	$ 266,000,000	$ 42,600,000	19%
3. Elkhead Reservoir Scenario	-	-	$ 335,100,000	$ 111,700,000	50%

*The Real Escalation Rate accounts for the rate of inflation, which we assume to be 3.15%.
† The estimate in the Draft EIS reflects 2005 dollars.

Table 9. Recent escalation factors for major Bureau of Reclamation projects.[90]

Bureau of Reclamation	Average Annual Escalation Rate, 2004 – 2008*
Concrete Dams	6.9%
Pumping Plants	5.3%
Steel Pipelines	4.5%
Primary Roads	7.2%
Composite Index	**6.0%**

*Average annual escalation rates for the Bureau are for the period January 2004 to January 2008.

Other Economic Factors

The recent economic downturn could have several important implications for the Windy Gap Firming Project. Primarily—as described in prior comments on **Project Purpose and Need** and **Conservation and Efficiency**—the rate of housing foreclosures in some of the participating cities has been among the highest in the state and, indeed, the nation. Given the depth of the economic slow down, population growth rates used in the Draft EIS likely overestimate *actual* rates of growth, potentially saddling existing residents with a capital-intensive water project. Secondly, the 2008 credit crisis has made funds for all projects less available. Six of the WGFP participant cities – representing 48% of the total project costs – anticipate paying for the project through debt financing or a combination of cash and debt financing.[91] In order to secure funding, these participants

[90] Bureau of Reclamation, Technical Service Center, *Construction Cost Trends*, 2004 to 2007, and 2008, http://www.usbr.gov/pmts/estimate/cost_trend.html.
[91] Draft EIS, Table 3-138, p. 3-280. Broomfield, which will pay for approximately 28% of the total project cost, will use a combination of cash and debt financing.

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29	may face higher bond rates, increasing the long term cost of the project. This eventually is especially true for the participants who will use tap fees (i.e., funds directly tied to real estate development) to repay bonded debt.	
30	**Conclusions on Construction Costs** In recent years, the cost of construction has risen dramatically. Prior to issuing a Final EIS, the Bureau of Reclamation must re-estimate the cost of WGFP alternatives. The DEIS notes that the cost of reservoir construction has risen 17% since original estimates[92] – by the time construction commences, costs may likely be significantly higher. Substantial uncertainty surrounds future costs and financing. The 2007-2008 economic downturn has had global ramifications; demand for raw materials has fallen worldwide, and has been accompanied by falling prices, but the recent collapse of the finance sector in the U.S. makes loans and other financing arrangements uncertain, and likely to stay that way well into 2009. This level of uncertainty provides additional reason to invest in water conservation measures. Using our revised estimate of conservation savings and participants' total demands, firm water supplies are sufficient for WGFP participants through 2030, and other proposed regional projects will meet demands through 2050. Given this, investing in an expensive construction project seems unwarranted. Furthermore, in an uncertain economy, conservation measures represent a robust, risk-averse strategy for water utilities to meet their future demands. Although conservation measures also require an up-front investment, they do not incur long-term debt. Furthermore, if population and demand for water supplies do not grow as rapidly as projected, cities will not be saddled with unnecessary, long-term debt burdens.	30. See response to Comment No. 28.
31	**6. Hydrology, Modeling, Water Quality, Stream Morphology** **Background** The DEIS purports to assess and summarize impacts on river flows. The tone of the assessment, however, is primarily of a supply infrastructure nature: average existing and predicted flows are reported, and objectives are reported in simple terms of in-stream flows or outdated sediment transport assessments. As a general matter, the DEIS does not assess natural system needs—the morphologic, aquatic and habitat needs—in terms of magnitude and variability using contemporary methods. Without this assessment it is impossible to determine whether the predicted changes will have a significant impact on factors such as channel aggradation or fish habitat. As a result, it is premature for the DEIS to provide any conclusive statements as to whether the morphologic, aquatic and habitat needs are preserved or impacted.	31. The EIS provides an assessment of hydrologic effects and associated impacts to stream morphology, aquatic habitat, water quality, and other resources using contemporary sound scientific methods. Daily hydrologic data for a 47-year period of record were used in the evaluation of hydrologic changes and as input for modeling and evaluation of resource impacts. Reclamation believes that the analyses of effects to streamflow, stream morphology, water quality, and aquatic life, and other resources provide reasonable estimates of what the project effects would be based on the best available information. See further discussion in response to Comment Nos. 32 to 38.
	[92] Draft EIS, p. 2-25.	
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32	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **Flow Modeling is Inadequate** Upper Colorado River flows change on a day-to-day, and even hour-to-hour basis. The DEIS, however, lumps flows into averages. Thus, it masks the potential for short-term critical periods of elevated stream temperatures, the lack of sufficient peak flows for channel maintenance, and reduced flows dropping below critical thresholds for short, but significant periods. The DEIS fails to take advantage of contemporary information and methods accounting for short term variability associated with the Upper Colorado River system. This prevents the DEIS from being a valid assessment of WGFP impacts.	32. Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Lake Granby, below Windy Gap, at Hot Sulphur Springs, near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data were used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses, based on daily variations, were used in resource assessments where the magnitude or value of the resources are especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. For example, daily hydrologic data were used as an input parameter for the River2D model to evaluate the effects on aquatic resources. Use of daily data for the entire hydrologic study period supported an assessment of the overall range and frequency of aquatic habitat changes. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations. Because of its relatively junior water rights, the Windy Gap Project is not in priority and is precluded from diverting water from the Colorado River during droughts and low-flow periods, with or without the alternatives assessed, to provide firming storage. During low-flow periods, the Windy Gap Project would operate the same whether there is a firming project online or not. In these low-flow conditions, downstream Colorado River flows, whether they are viewed on a monthly or daily basis, are the same for existing conditions, the No Action Alternative, and each of the EIS alternatives. Because there are no hydrologic impacts from the WGFP during low-flow and drought periods, a daily model is not needed to assess effects for these low-flow periods, and the disaggregation of monthly data to daily data is sufficient for the assessment of effects for nondrought conditions.
33	Phase 3 of the Grand County Stream Management Plan will include analysis of daily flows and variability prescriptions. It should be used as a tool to refine and improve the DEIS.	33. The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available
	Stream Morphology	
34	Assessment of whether the WGFP will push flows below levels critical for stream-channel maintenance flows cannot be adequately assessed because the WGFP DEIS lacks sufficient analysis to assess the changes in critical flow patterns. Examples include: ▪ Table A-15: recurrence intervals at the upper end span a wide range (10-year to 25-year). There is, however, considerable difference in the channel maintenance provided by flows of these recurrence intervals and no indication as to the distribution within these recurrence intervals. Schmidt and Potyondy (2004) recommend a 25-year interval flow so that less than 1% of sediment is left in channel, and note that limiting flushing flows to a 5-year interval will leave 10% of sediment load in the channel, contributing to stream aggradation.	
35	▪ The DEIS uses potentially misleading statements regarding recurrence of peak discharges. For example, the DEIS reports that the 2-year peak discharge would decrease from 4% to 3% of the time, resulting in the 2-year peak discharge occuring 1% less frequently. However, summarizing changes in flow-occurrence, the percentage of days in the season for which the flow occurs, in this manner will tend to mislead the reader into believing there is no significant impact. In several places the DEIS dismisses changes, such as from 4% to 3% of the season, as inconsequential (Windy Gap DEIS, Table 2-6 p. 2-57 and Table 2-7 p. 2-68). Stated as a 1% change, the impact may appear insignificant, but it is a significant portion of the total number of days during which the flow does occur. For example, during a 100-day season the number of days with the target flow would drop from 4 to 3 times, a 25% drop in flow occurrence. For the assessment of stream impacts, the DEIS needs to consider impacts in the more relevant terms of the number of days that the flow occurs, rather than the percentage of the season.	
36	▪ The DEIS refers to a 450 cfs flushing flow, based on calculations performed by Ward (1981), produced for the NCWCD. This single flow-level target does not 38	

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		water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. 34. The 10- to 25-year flow range shown in Table 3-32 is 4,600 to 6,520 cfs. This table shows when flows in this range would occur, what the average flow is for existing conditions and each alternative, and other information on the frequency and duration of such flows. The peak flow recurrence intervals shown in the table are those that are typically used in an analysis of stream channel maintenance. The intervals could be broken down into smaller ranges, but, as indicated by Figure B-1 in the Water Resources Technical Report appendices, the change in flows of 4,600 cfs or greater is very small between existing conditions and the alternatives. Flows exceeding the 5-year flow of 3,160 cfs would continue to occur under the alternatives. 35. The flow duration curve for the Colorado River at Hot Sulphur Springs indicates a decrease in the frequency of 2-year flows of 1,240 cfs from 4% of the time under the action alternatives to 3% of the time (25% change) under existing conditions. This discussion was clarified in the FEIS. However, the flow duration curves show that for flows exceeding 1,240 cfs, the decrease in frequency of occurrence would be similar to existing conditions. According to the channel maintenance flows analysis, the range of channel maintenance flows (80% of the 1.5-year flow to the 25-year flow) would occur about 1% less frequently under the Proposed Action than existing conditions, and the duration of such flows in years when channel maintenance flows occur could be slightly longer. The number of days that various channel maintenance flows occur, as well as other information on magnitude, frequency, and duration of such flows is provided in Table 3-32. 36. The 450 cfs flushing flow established for the WGFP is still sufficient to transport fine sediments (<2 mm) and prevent aggradation. Under existing condition, Colorado River flows at Hot Sulphur Springs equal to or greater than 450 cfs occur for 3 consecutive days an average of 28 days per year under existing conditions over the 47 year period of record. For the Proposed Action, flows of 450 cfs would occur for 3 consecutive days for about 20 days per year on average. As Table 3-32 in the FEIS indicates, the full range of channel maintenance flows substantially greater than 450 cfs would continue to occur under the alternatives, although the frequency would decrease. The FEIS includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase

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36	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 provide the range of flows necessary for channel maintenance, and is considerably less than high flows recommended using more recent methods (e.g., Schmidt and Potyondy (2004)). **Water Quality** Similar analytic shortcomings exist for water quality. For example: ▪ The DEIS identifies the Upper Colorado River as a gaining stream, with ground water flowing into the river from adjacent alluvium and bedrock (Water Resources Technical Report, p. 35). Bedrock ground water quality is of lower quality than the river water. The DEIS assesses potential for impact by pointing out that the average stage decrease will be on the order of inches. However, the DEIS fails to consider the potential impacts when the minimum 90-cfs flow occurs, with considerably larger stage decreases, greater potential for ground water influx and reduced dilution capacity of the river. ▪ The DEIS fails to stress that the impact on water temperatures are significant, potentially reaching a tipping point. Water temperature increases are evaluated on a snapshot basis for averaged flows for essentially two different conditions (WGFP DEIS, p 3-116). These average temperatures are reported as being a 0.6 degree Celsius increase (~ 1 degree Fahrenheit). The DEIS reports that MWAT values are not exceeded for an average July 25th day. However, there are at least two other critical issues to consider: (1) these numbers are based on predicted temperatures based on median values, and (2) when the 90 cfs flow condition is considered, temperatures do exceed the MWAT value of 18.2 degrees Celsius. Considering the uncertainty of the various calculations, it seems quite probable that the flow-regime changes would push temperatures past threshold levels. **References for this sub-section** Schmidt, Larry J.; Potyondy, John P. 2004. Quantifying channel maintenance instream flows: an approach for gravel-bed streams in the Western United States. Gen. Tech. Rep. RMRS-GTR-128. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 33 p. Ward, T.J. 1981. Analysis of Aggradation and Degradation below Proposed Windy Gap Reservoir, Colorado River. Research Institute of Colorado, Fort Collins, CO. Submitted to Northern Colorado Water Conservancy District. Ward, T.J. and J. Eckhardt. 1981. Analysis of Potential Sediment Transport Impacts below the Windy Gap Reservoir, Colorado River. Aquatic Resources Management of the Colorado River Ecosystem, Edited by V. Dean Adams and Vincent A. Lamarra. Ann Arbor Science. 39	from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap (FEIS Appendix E). A recent evaluation was completed of available streamflow vs. shear stress data at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. In Ward's 1981 study, his results at four locations located from below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows minor changes in flows of 150 cfs or less, and at the Kremmling gage changes at flows less than 1,000 cfs are minimal. Additional discussion was added in Section 3.7.2.6 of the FEIS. 37. The bedrock ground water flow (or flux) that discharges to the Colorado River is not controlled by river stage. The driving head for bedrock ground water discharging to the river is generally much higher than the possible range of river stage between high and low flows and, as a result, controls the rate of discharge, along with other hydraulic parameters such as hydraulic conductivity and saturated thickness. Changes in river stage may affect bedrock hydraulic gradient in the immediate vicinity of the river, but the rate of ground water discharge to the river does not change as a result of changes in river stage. The predicted maximum stage change that would result from Windy Gap diversions to the minimum streamflow of 90 cfs, in combination with effects due to changes in Granby Reservoir spills as a result of the Project, is about 0.75 feet. Stage reductions would occur only for short periods of time, typically 2 weeks or less, but rarely up to 1 month. Also, stage reductions under this flow scenario would occur only during about 15% of all years. A river stage reduction of 0.75 feet and a similar reduction in nearby alluvial ground water levels would be within the range of current variability due to climate variability and surface and ground water use effects on the Colorado River system. Additional discussion was added to the ground water section of the FEIS in Section 3.1.2.4.
37		
38		

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		38. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.

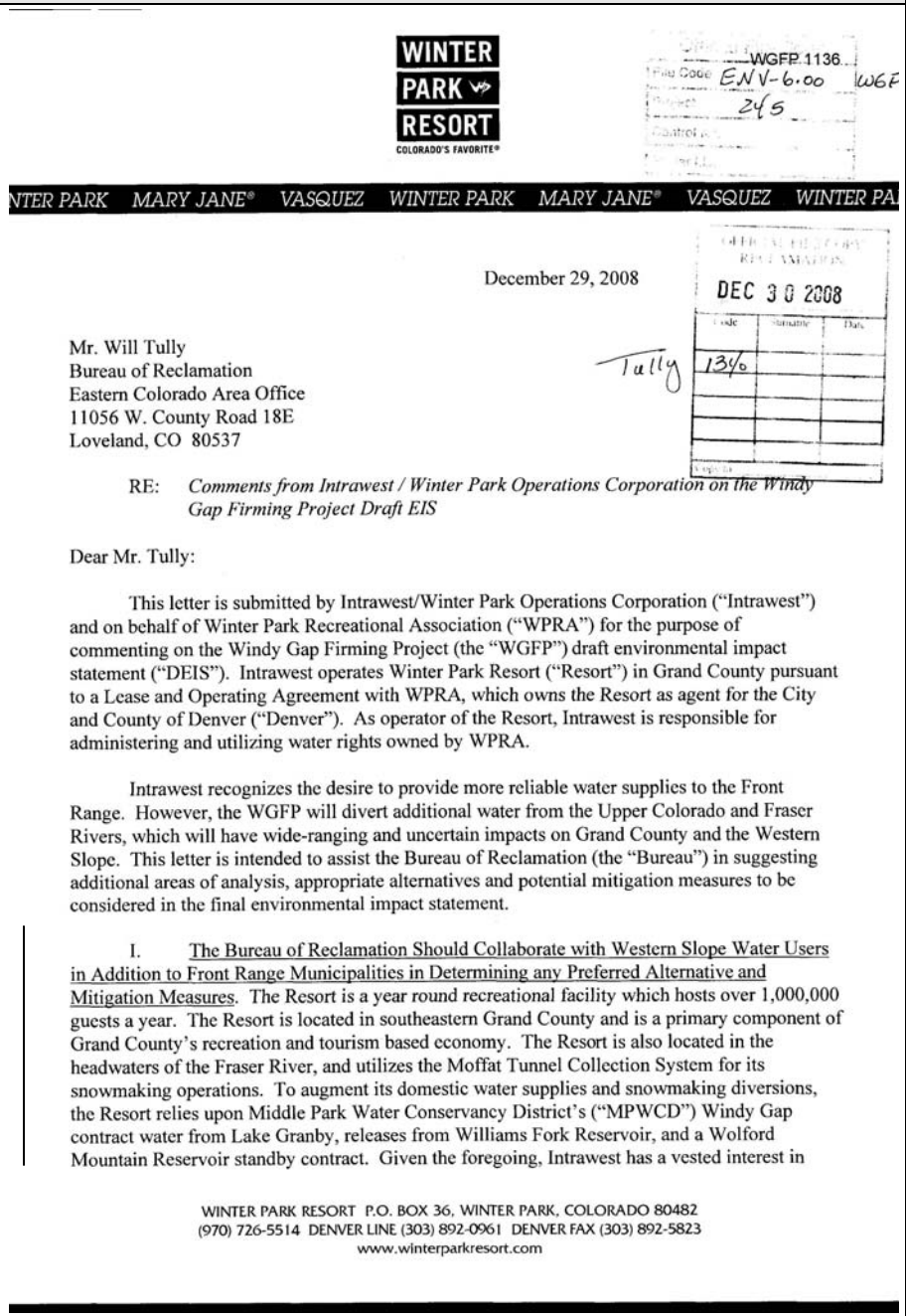
Com-ment	Letter #1138	Response
39	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 **7. Energy Use** According to the Draft EIS, all of the WGFP alternatives will generate more electricity than under current conditions. To maximize this potential, WRA supports in-conduit hydropower generation. The Draft EIS notes that because the Windy Gap Project has *not* historically generated as much power as it was expected to, WAPA has been forced to purchase power from other sources—primarily coal fired power plants—to replace the Windy Gap power.[93] Furthermore, the DEIS notes that with the additional WGFP generation, WAPA will reduce some of its coal-based electricity purchases. Although the WGFP will only provide a small amount of additional, annual power generation, we recommend that WAPA commit to reducing its coal-based electricity purchases by that amount. And, if or when the opportunity arises, we encourage WAPA to re-power its in-conduit hydro facilities, in order to maximize the power generated by water deliveries.	39. The operation of the WGFP would cause more electrical energy to be generated at Colorado-Big Thompson (CBT) Project hydroelectric facilities because more water would pass through C-BT Project hydroelectric facilities on the eastern slope. If built, the Western Area Power Administration (Western) would have to purchase less electrical energy on the wholesale power market to meet contractual firm power commitments. As noted in Comment No. 7, the source of the avoided energy purchases will most likely be coal-fired generating facilities in the Rocky Mountain region. Federal law requires Western to market power generated at federal hydroelectric projects at the lowest possible rates consistent with sound business principles. As such, Western purchases the least expensive wholesale electrical energy available, regardless of the generating resource, to meet its firm power commitments. Regarding the comment "…to re-power its [WAPA's] in-conduit hydro facilities…," Western neither owns nor operates any electrical generating facilities. All generating facilities of the C-BT Project are owned and operated by Reclamation. While Reclamation solicits input from Western regarding potential upgrades to existing C-BT generating facilities, the ultimate decision on the type of upgrades is Reclamation's responsibility.
40	**8. Range of Alternatives: No Action Alternative and Supply Options** As noted in Section 2 of these comments, the DEIS's artificially constrained Purpose and Need statement resulted in screening-out alternatives for meeting the water supply needs of the participating municipalities. The DEIS notes that the criterion used "did not eliminate potential reservoir storage alternatives, but did eliminate other types of alternatives." DEIS at 2-3. These alternatives include, but are not limited to, increasing levels of water conservation and transferring water in the South Platte basin from agricultural to municipal use. Adjusting the Purpose and Need statement to more accurately reflect the purpose of helping meet municipal water demands would enable a broader range of alternatives in the EIS. Notably, a DEIS over 500 pages long gave scant mention of the option of meeting municipal water needs through water transfers from agriculture. DEIS at 2-6. The DEIS summarily concluded interruptible supply contracts "do not provide a long-term reliable supply of water." *Id.* Missing from this analysis was any analysis of fallowing arrangements or permanent acquisition of water from agricultural, both of which would provide a "long-term reliable supply." The DEIS must address this deficiency. The DEIS should incorporate analysis by WRA and Save the Poudre Coalition related to the proposed Northern Integrated Supply Project (NISP), the "Healthy Rivers, Healthy Communities" report. *See* http://www.savethepoudre.org/eis_documents.html The "Healthy Rivers" alternative provides a template for meeting municipal water demands that could apply just as easily to WGFP participants as to NISP participants (as noted previously, there is a larger overlap in potential beneficiaries). Further, for the No Action alternative the DEIS must do more than suggest most participants have no alternative plan for meeting future water demands. The DEIS notes that Longmont would pursue enlarging Ralph Price Reservoir and that Lafayette would [93] Draft EIS, p. 3-279. 40	40. See response to Comment No. 2. Under the No Action Alternative, Participants would increase Windy Gap deliveries as demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. Most Participants would still need to secure other sources of water and explore other options for storage of their Windy Gap water.

Com-ment	Letter #1138	Response
40	Western Resource Advocates' comments on WGFP Draft EIS -- December 2008 dispose of Windy Gap units and not pursue future units (DEIS 2-15). Many WGFP beneficiaries do have other contingencies, including relying upon the NISP, which would meet demands during the planning period.	
41	**9. Aquatic and other Environmental Impacts** WRA directs the BOR (and incorporates into these comments by reference) comments on aquatic and environmental impacts submitted by Grand County, Trout Unlimited, Northwest Colorado Council of Governments, and others. In short, there are considerable aquatic and environmental issues that have not been adequately addressed in the DEIS.	41. Responses to other substantive comments on the DEIS are addressed in an appendix to the FEIS.
42	**10. Mitigation** Mitigation for any environmental impacts is a key element of any NEPA process. However, the WGFP DEIS does not commit to any mitigation. Though several mitigation measures are discussed, it is clear there are no commitments to implement mitigation. The DEIS notes "inclusion of these mitigation measures does not imply that all measures listed will be implemented" and that mitigation measures are "under consideration." DEIS at 3-292. By suggesting that evaluation of additional mitigation possibilities "will be conducted between the release of the DEIS and the preparation of the Final EIS" the BOR has made public comment impossible. At this stage, the DEIS simply has insufficient certainty of proposed mitigation to allow required public comment. *** Thank you for your attention to these comments. We look forward to discussing them further. 41	42. Additional mitigation measures were defined and developed to avoid or minimize impacts from implementation of the proposed Project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.

Com-ment	Letter #252	Response
	WGFP 252 ENV-6.00 W 295 Wiegers & Co. OFFICIAL FILE COPY NOV 17 2008 Tully 1340 ... November 14, 2008 Dear Will Tully I am part owner of a working ranch in Kremmling Colorado with about a mile of the Colorado River irrigating our hay meadow and providing recreation for many of our vacationing friends (SkyLark Ranch). Over recent years the river has been seriously impacted by water diversions by Denver Water and Northern Water (Windy Gap), Temperatures get higher as water levels P.O. Box 6896, 30 Benchmark Rd. # 212, Avon, CO 81620 Tel: 970.748.6724 • Fax: 970.748.6736 • E-Mail: ~~gawinvail@aol.com~~ George@Wiegersco.com	

Com-ment	Letter #252	Response
1	are reduced and the quality of fishing is poor.. I understand that Northern Water Conservancy District now has a plan to take even more water, and do it without mitigation or, for that matter, without even promoting conservation with their customers. This is irresponsible and I hope that you will intervene to represent the Colorado River users. Fish need water! Sincerely Cecile A Wiegers	1. Additional mitigation measures were defined and developed to reduce, avoid, or minimize potential impacts from implementation of the proposed project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures is also included in Section 3.25 of the FEIS. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.

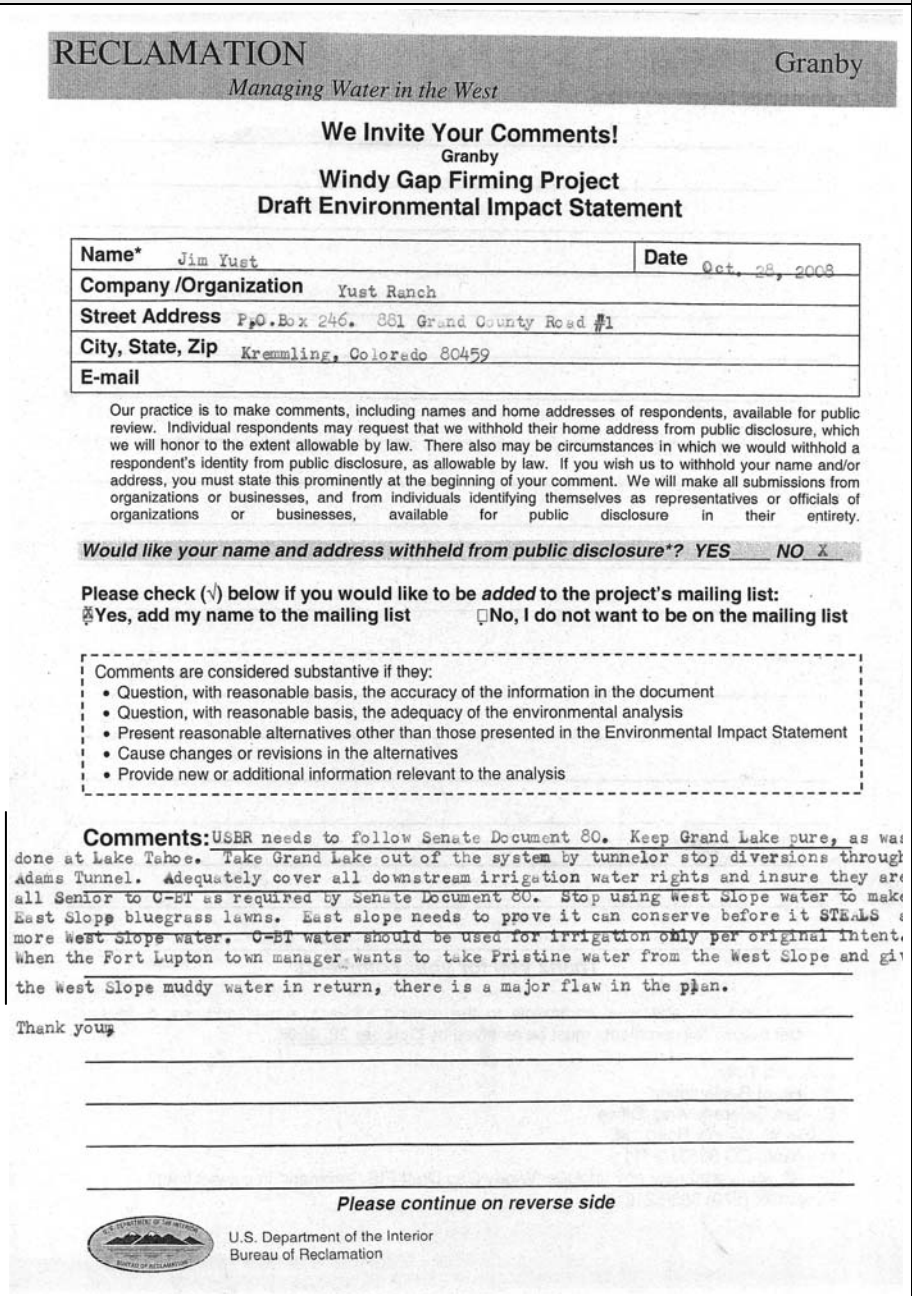
Com-ment	Letter #380	Response
	WGFP 380 Granby Public Hearing Transcript for Windy Gap Firming Project October 9, 2008 Scott Linn MR. LINN: Hi, my name is Scott Linn. That's L-i-n-n. And I am a resident of Granby and a business owner in Winter Park and a board member of the Colorado River Headwaters chapter of Trout Unlimited. And since I've been involved with Trout Unlimited, I've had the opportunity to help start the temperature monitoring program that we're doing in the county. I've also helped do some of the macro-invertebrate studies in the county and helped with some of the Division of Wildlife electro-fishing in the county. And I have spent many time in waders below Windy Gap, and I can tell you, you don't have to be a scientist to know that that's not a healthy river. You just have to be a lover of nature to understand that. I'm really proud of my fellow citizens tonight, articulating all the holes that are in this EIS. I'm not going to go through them all again. It's pretty redundant.	
1	But, basically, I think we have shown that there is many problems with this EIS. And even the no-action alternative, which will still take 7,000-acre-feet, how is that a no-action alternative? I think you've got to send this back to the drawing board unapproved.	1. The No Action Alternative represents what the project Participants would do if the proposed action were not approved by Reclamation.
2	You can't even accept the no-action alternative at this point. How can you make mitigations when you haven't considered the cumulative effects of Moffat and Windy Gap together? Not to mention the BLM potentially selling leased land for oil and gas development along the river as well. You know, there is a lot of impacts that we're facing here. I think the Bureau definitely needs to send more of it back to the drawing board on this one. Thank you.	2. The impact of the Moffat Collection System Project and other reasonably foreseeable actions were fully considered in the cumulative effects evaluation and are discussed in the various resource discussions. Additional mitigation has been developed to avoid or minimize resource impacts associated with the WGFP, as summarized in Section 3.25 of the FEIS.

Com-ment	Letter #1136	Response
1		1. Additional mitigation measures were defined and developed to avoid or minimize impacts from implementation of the proposed Project. Mitigation measures and the effectiveness of those measures are described for each resource in Environmental Consequences—Chapter 3. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS. The WGFP would have no impact on the Fraser River and would improve the reliability of water availability for the Middle Park Water Conservancy District (MPWCD). The Subdistrict, Reclamation, and Corps of Engineers have met with Grand County and others multiple times in the development of mitigation measures for the proposed Project.

Com-ment	Letter #1136	Response
	Mr. Will Tully December 29, 2008 Page 2 of 4	
1	preserving the environment and conserving the limited water supplies in Grand County. Any structural or operational changes to the Windy Gap Project could have significant impacts to the Resort's recreation-based business and the Grand County economy as a whole. The Bureau of Reclamation should collaborate with local stakeholders such as Intrawest, who are directly impacted by the WGFP, in finalizing the WGFP's environmental impact statement and proposing any preferred alternative and mitigation measures.	
2	II. Firming of Middle Park Water Conservancy District's 3,000 Acre-Feet of Windy Gap Project Water Should be the Top Priority of the Windy Gap Firming Project. MPWCD's 3,000 acre-foot pool of Windy Gap Project water stored in Lake Granby has been used and relied upon by many Western Slope water users as a source of replacement water in their augmentation and exchange plans. The Resort is one of the many that utilizes MPWCD water. However, in recent years, the availability of MPWCD water has been unreliable and local water users have been left with no viable source of replacement water. Intrawest supports and encourages all efforts to firm water deliveries for the MPWCD. Any concern or comment to other portions of the DEIS should not be considered as contrary to this priority.	2. The WGFP would provide 3,000 AF of storage in Granby Reservoir or Chimney Hollow Reservoir for MPWCD. This storage would provide a firm yield of 429 AF (Table 3-19 of the FEIS) for an average yield of about 2,000 AF. Paragraph 2 of the "1985 Supplement" to the "1980 Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project" states that "The Subdistrict will dedicate and set aside annually, but noncumulatively, at no cost to Middle Park, 3,000 acre feet of water in Granby Reservoir that is produced each water year from Subdistrict water supplies, for beneficial use without waste, either directly or by exchange or substitution in Middle Park." The Subdistrict has no obligation to provide water to Middle Park in any year when such water cannot be produced from Subdistrict supplies. Middle Park has been offered the opportunity to participate in the WGFP and improve their yield with storage in much the same manner as other WGFP Participants.
3	III. The Windy Gap Firming Project EIS and the Moffat Collection System Project EIS Should be Merged and Considered Jointly. As recognized in the DEIS, the US Army Corps of Engineers ("COE") and the Denver Water Board are proceeding concurrently with a separate National Environmental Policy Act ("NEPA") process for Denver's Moffat Collection System Project. It is Intrawest's understanding that a preliminary draft of the COE's environmental impact statement for the Moffat Collection System project has been completed but not released to the public. The combination of the WGFP and the Moffat Collection System project could potentially take all the remaining water from the Fraser River valley and Upper Colorado River basin and will undoubtedly have a profound effect on Grand County and the Western Slope. While the DEIS cursorily addresses the Moffat Collection System project as a reasonably foreseeable action, only a consolidated NEPA process that analyzes jointly the interrelationship of the two projects will be sufficient to fully determine the cumulative environmental impacts on Grand County, the Upper Colorado River and the Fraser River.	3. The WGFP FEIS fully considered the cumulative impacts of the Moffat Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impacts of the WGFP. The WGFP and Moffat Project have different objectives, different project proponents, and no shared facilities. Combining the two projects in one EIS is not needed to adequately evaluate the cumulative effects of the projects. The Corps is a cooperating agency for the WGFP, and Reclamation and the Corps have coordinated on the assessment of cumulative effects and mitigation for the two projects.
4	IV. The Fraser River is an Affected Environment and the Environmental and Socio-Economic Consequences of the Project on the Fraser River Corridor Should be Analyzed. The Fraser River is the first main tributary to the Colorado River, draining a large portion of the Middle Park basin. During spring runoff, water from the Fraser River is pumped from Windy Gap Reservoir to Lake Granby. Throughout the year, stream flow and water quality conditions in the Fraser River directly impact the stretch of the Upper Colorado River designated as the affected area. In addition, a significant portion of the Grand County population is located near the Fraser River and many recreational opportunities that drive the Grand County economy, such as Intrawest's operations, occur along the Fraser River corridor. Thus, even if none of the	4. The WGFP does not pump from the Fraser River nor does it affect flows in the Fraser. Windy Gap water is pumped from Windy Gap Reservoir located on the Colorado River about one mile downstream of the confluence with the Fraser River. Indirect impacts to recreation and socioeconomics in Grand County

Com-ment	Letter #1136	Response
	Mr. Will Tully December 29, 2008 Page 3 of 4	were evaluated as part of the EIS. Additional mitigation measures included in the FEIS, as summarized in Section 3.25, would provide new benefits and reduce the potential recreation and socioeconomic effects of the WGFP. Mitigation that removes nutrients from the system upstream of the WG diversion would improve water quality in the Fraser and Colorado Rivers year around.
4	proposed alternatives would directly affect the physical flows of the Fraser River, the WGFP will have an indirect impact on the Fraser River and its surrounding environment. It is therefore important that the Fraser River be considered an affected environment and the environmental and socio-economic consequences of the WGFP analyzed accordingly.	5. As stated in response to Comment Nos. 1 and 4, additional mitigation measures were added to the FEIS to address impacts to water quality, Granby Reservoir water levels, fish and wildlife resources, and other resources. The Windy Gap Project would continue to bypass flows in accordance with the Windy Gap water rights and the agreement between the Subdistrict and the Colorado Division of Wildlife signed on June 23, 1980. Additionally, mitigation for temperature effects were included in the Fish and Wildlife Mitigation Plan developed by the Subdistrict and the Colorado Division of Wildlife in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). See Section 3.8.4 in the FEIS for a description of temperature mitigation. Providing 3,000 AF of storage for MPWCD would directly benefit water users in the Fraser River and Colorado River basin by increasing the reliability of water deliveries. WGFP diversions would be curtailed if preferred flows are not available for the annual Gore kayak races.
5	V. The Final EIS Should Address Mitigating Negative Impacts from Additional Colorado and Fraser River Diversions. Intrawest is very concerned about the impact of decreased flows in the Colorado River below the Windy Gap Reservoir, resulting from implementation of the proposed action, especially considering the fact that the environmental impacts of the Moffat Collection System project and the WGFP are not being analyzed in unison. Preservation of the Grand County environment as a whole is essential to our recreation-based business. Reduced flows will have a detrimental effect on the residents of Grand County and our guests, who choose to visit Winter Park and Grand County because of the natural environment and the recreational opportunities it provides. With the exception of reducing potential drawdown in Granby Reservoir, the DEIS does not address or propose mitigating negative water resources impacts, which could also diminish the expected adverse impacts to aquatic resources, water quality and recreational opportunities. Mitigation measures for stream diversions should be identified and proposed as part of the WGFP. Proposals include building water storage projects which directly benefit water users in the headwaters of the Colorado and Fraser rivers and acquiring and retiring senior direct flow rights that could be used to increase in-stream flows. Bypass flow requirements, both permanent and mandatory, should also be analyzed as potential mitigating factors. We encourage the Bureau to utilize Grand County's Stream Flow Management as a guideline to identify mitigation measures.	The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Our understanding is that the objective of the SMP was to develop preferred and recommended streamflows, water quality, and available water supplies for water users in the basin. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS, may help meet some of the goals of the SMP.
6	VI. Specific Conservation Measures Should be Identified and Required by the Bureau of Reclamation. Conservation should be an essential component of any plan to satisfy the water demands of Colorado's growing population. Intrawest understands this and is constantly integrating water conservation measures into Resort operations to do our part. The Bureau needs to increase the scope of the WGFP and take a more active role in encouraging conservation measures amongst Project Participants. Doing so could postpone or even obviate the need for the WGFP.	6. The WGFP Participants have committed, and will be required, to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Six of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict.
7	VII. The Cost of Decreased Water Quality Caused by Increased Upper Colorado River Diversions Should be Allocated Equitably. The totality of the impacts from changed water quality and increased water temperature should be addressed in the final environmental impact statement. Local wastewater treatment facilities must already maintain potable drinking water for area residents and guests without the benefit of diluting flows that now go to the Front Range. Further degradation of water quality may require these local operators to invest in expensive upgrades to current treatment systems. This places a disproportionate additional expense on Grand County residents and guests.	

Com-ment	Letter #1136	Response
	Mr. Will Tully December 29, 2008 Page 4 of 4 Intrawest appreciates the opportunity to submit comments for the Windy Gap Firming Project EIS. As an integral member of the Grand County community and a party directly impacted by all water resources projects involving the Fraser and Upper Colorado Rivers, Intrawest also looks forward to actively participating in this public process and in finding long-term solutions to Colorado's water problems that still preserve our Grand County environment. Sincerely, Gary DeFrange President & COO GD:ns	7. The WGFP would not impact the flow or water quality of dilution flows upstream of WWTP discharges in the Fraser River basin. Proposed water quality mitigation includes reducing nutrient loading to the Three Lakes by funding projects that would lower nutrient contributions to the water shed upstream of the WG diversion as described in Section 3.8.4 of the FEIS. These measures would offset the nitrogen and phosphorus loadings to the Three Lakes projected from the WGFP. Water quality improvements would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and Colorado River.

Com-ment	Letter #168	Response
1		1. Modifications in C-BT facilities are beyond the scope of the proposed WGFP and beyond the scope of the EIS. Reclamation will continue to operate the C-BT Project in accordance with the requirements of Senate Document 80 including meeting the needs of downstream irrigators in accordance with the requirements of Senate Document 80. Proposed water quality mitigation, as described in Section 3.8.4 of the FEIS, would reduce nutrient loading from the WGFP to the Three Lakes System so that the WGFP would not exacerbate the algae and clarity problem in Shadow Mountain reservoir and Grand Lake. The WGFP Participants have committed and will be required to maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004, as amended (Colorado House Bill 04-1365). Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans and other participants will be required to have a CWCB-approved plan prior to delivery of WGFP water. Reclamation will require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict .

RECLAMATION
Managing Water in the West

Granby

We Invite Your Comments!
Granby
Windy Gap Firming Project
Draft Environmental Impact Statement

Name* Jim Yust	**Date** Oct. 28, 2008
Company /Organization Yust Ranch	
Street Address P.O.Box 246. 881 Grand County Road #1	
City, State, Zip Kremmling, Coloredo 80459	
E-mail	

Our practice is to make comments, including names and home addresses of respondents, available for public review. Individual respondents may request that we withhold their home address from public disclosure, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity from public disclosure, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public disclosure in their entirety.

Would like your name and address withheld from public disclosure*? YES___ NO X

Please check (√) below if you would like to be *added* to the project's mailing list:
☒Yes, add my name to the mailing list ☐No, I do not want to be on the mailing list

Comments are considered substantive if they:
- Question, with reasonable basis, the accuracy of the information in the document
- Question, with reasonable basis, the adequacy of the environmental analysis
- Present reasonable alternatives other than those presented in the Environmental Impact Statement
- Cause changes or revisions in the alternatives
- Provide new or additional information relevant to the analysis

Comments: USBR needs to follow Senate Document 80. Keep Grand Lake pure, as wa done at Lake Tahoe. Take Grand Lake out of the system by tunnelor stop diversions throug Adams Tunnel. Adequately cover all downstream irrigation water rights and insure they ar all Senior to C-BT as required by Senate Document 80. Stop using West Slope water to mak East Slope bluegrass lawns. East slope needs to prove it can conserve before it STEALS more West Slope water. C-BT water should be used for irrigation only per original intent. When the Fort Lupton town manager wants to take Pristine water from the West Slope and gi the West Slope muddy water in return, there is a major flaw in the plan.

Thank you

Please continue on reverse side

U.S. Department of the Interior
Bureau of Reclamation

Response to Comments by Individuals

Responses to individual comments are organized by comment topic to provide a more comprehensive response while limiting repetition (Table 3). Individuals who commented on the Draft EIS are listed alphabetically by last name below in the section on *Comments by Individuals*. Below each individual's name is a list of the topics that were mentioned in their comments. Responses to individual comments can be found by first looking at the comment topic code for an individual comment and then in the responses to comments for a given topic in the section below on *Response to Individual Comments by Topic.* The previous responses to comments from cooperating agencies, government agencies, elected officials, organizations, environmental groups, and businesses provide additional details and information on many of the issues identified by individual commenters.

Table 3. Comment codes.

Comments by Individuals

Doc **Commenter and Issues**

Adams, Craig

1 3001 Concern about overall environmental impacts

Adornetto, Cynthia (Broomfield, CO)

848 1008 Improved conservation plans should be developed
6002 Opposes project
2701 Consider Denver Moffat Collection System Project in impacts
4021 Additional mitigation is needed

Aex, Tom (Steamboat Springs, CO)

2 6002 Opposes project

Alander, Erik and Patty

1051 1007 Comment on water conservation River hydrology
3104 Concern about impact on Colorado

Alweis, Richard (Denver, CO)

3 5001 Request for extension of comment period
6002 Opposes project

Anderson, Fred E. (Loveland, CO)

257 2202 Comment supports Proposed Action

Arguino, Will

354 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3809 Concern about West Slope economic effects
4003 Comment or suggested mitigation for surface water flow
6002 Opposes project
6030 Other comments

Arnold, Andy

355 6002 Opposes project

Atyas, Joel (Asheville, NC)

6 3703 Concern about impact to boating in the Colorado River
3704 Concern about impact to fishing in the Colorado River
3804 Concern about economic effects to Colorado River boating
3805 Concern about economic effects to Colorado River fishing

Bacon, Teresa and Peter Sutherland (Englewood, CO)

170 1008 Improved conservation plans should be developed

Bailey, Char (Lyons, CO)

8 1007 Comment on water conservation System Project in impacts
2701 Consider Denver Moffat Collection Management Plan
3901 Consider Grand County Stream
4003 Comment or suggested mitigation for surface water flow

Banks, Charles

356 1006 Believes conservation would eliminate need for project
1008 Improved conservation plans should be developed
3815 Concern about impact to West Slope tourism
4006 Comment or suggested mitigation for water quality

405 1008 Improved conservation plans should be developed
3809 Concern about West Slope economic effects
3815 Concern about impact to West Slope tourism
5001 Request for extension of comment period

Bauer, Ronald

7 3001 Concern about overall

environmental impacts

Beardsley, Richard

856 4021 Additional mitigation is needed 6001 Supports project

1053 4021 Additional mitigation is needed

Bender, Sue (Loveland, CO)

65 1007 Comment on water conservation 3308 Concern about aquatic life in Grand Lake 3708 Concern about impact to recreation at Grand Lake

6002 Opposes project

Bergen, Gretchen (Granby, CO)

10 1008 Improved conservation plans should be developed 3901 Consider Grand County Stream Management Plan

Berman, Patricia

11 1008 Improved conservation plans should be developed 3901 Consider Grand County Stream Management Plan 6002 Opposes project

Binder, Robert D. (Lakewood, CO)

12 6002 Opposes project

Bisbee MD, John W. (Fort Collins, CO)

861 3210 Concern about Grand Lake water quality 3304 Concern about aquatic life in Colorado River 3422 Concern about impacts to West Slope wetlands and riparian habitat

3703 Concern about impact to boating in the Colorado River 3815 Concern about impact to West Slope tourism 4021 Additional mitigation is needed

6002 Opposes project

Bowman, Rudy

1139 1008 Improved conservation plans should be developed 3506 Concern about impacts to wildlife at Chimney Hollow Reservoir 3609 General comment on land use

6002 Opposes project

Bowser, Bob

14 6002 Opposes project

Boyd, Mark: Control Solutions Inc. (Winter Park, CO)

15 1008 Improved conservation plans should be developed 2701 Consider Denver Moffat Collection System Project in impacts 3210 Concern about Grand Lake water quality

3901 Consider Grand County Stream Management Plan 4021 Additional mitigation is needed 5001 Request for extension of comment period

Brickner, Cassidi

16 1008 Improved conservation plans should be developed 2701 Consider Denver Moffat Collection System Project in impacts 3801 Comment on West Slope socioeconomics affected environment

3901 Consider Grand County Stream Management Plan 4021 Additional mitigation is needed

Brockway, Jerome D.

212 6002 Opposes project

Brooks, Joan C.

17 1007 Comment on water conservation

Brooks, Scott (Mtg.)

18 1008 Improved conservation plans should be developed

Brown, Douglas

20 3801 Comment on West Slope socioeconomics affected 6002 Opposes project

environment

Browne, Jeff (Fraser, CO)

21 1007 Comment on water conservation
3206 Concern about Colorado River water quality
3317 Concern about Zebra or Quagga mussels
3808 Concern about economic effects at Grand Lake
3809 Concern about West Slope economic effects
3810 Concern about East Slope economic effects
360 3104 Concern about impact on Colorado River hydrology
3206 Concern about Colorado River water quality
3229 Concern about Three Lakes water quality
3317 Concern about Zebra or Quagga mussels
3809 Concern about West Slope economic effects
6030 Other comments

Brunswig, Lori (Fort Collins, CO)

171 2005 Other substantive comment about Alternatives

Cada, Frank (Mtg.) (Loveland, CO)

22 3304 Concern about aquatic life in Colorado River
3726 Concern about impact to recreation at Chimney Hollow
3805 Concern about economic effects to Colorado River fishing
3814 Concern about cost to participants
6002 Opposes project

Cadarette, Judith (Loveland, CO)

23 1007 Comment on water conservation

Canup, Dan and Judy

172 3002 General concern about environmental impacts on the West Slope
6002 Opposes project

Carpenter, Norman A.: Gold Medal Ranch LLC

24 6002 Opposes project

Carpenter, Steve (Evergreen, CO)

173 3002 General concern about environmental impacts on the West Slope
3719 Concern about West Slope recreation impacts

Cassidy, Lynn (Hot Sulphur Springs, CO)

877 1008 Improved conservation plans should be developed
3213 Other comment on West Slope water quality
3229 Concern about Three Lakes water quality
3304 Concern about aquatic life in Colorado River
3317 Concern about Zebra or Quagga mussels
3605 Concern about impact to agriculture
3806 Concern about economic effects at Granby Reservoir

Chilson, John (Loveland, CO)

409 3506 Concern about impacts to wildlife at Chimney Hollow Reservoir
3603 Concern about impact to land use and ownership on East Slope

Clark, John (Eagle, CO)

25 5001 Request for extension of comment period
6002 Opposes project

Clark, Tom (Kremmling, CO)

26 2701 Consider Denver Moffat Collection System Project in impacts
3206 Concern about Colorado River water quality
3608 Concern about ability to divert water from the Colorado River

Cloud, Jacob (Denver, CO)

28 1007 Comment on water conservation
3001 Concern about overall environmental impacts
3605 Concern about impact to agriculture
3815 Concern about impact to West Slope tourism

Colosimo, Norma

30	1007	Comment on water conservation	3815	Concern about impact to West	6002	Opposes project	
		Slope tourism					

Copanas, Brian (Littleton, CO)

31	3703	Concern about impact to boating in	3704	Concern about impact to fishing in	3804	Concern about	
economic effects to							
		the Colorado River		the Colorado River		Colorado River boating	
	3805	Concern about economic effects to					
		Colorado River fishing					
32	3703	Concern about impact to boating in	3704	Concern about impact to fishing in	3804	Concern about	
economic effects to							
		the Colorado River		the Colorado River		Colorado River boating	
	3805	Concern about economic effects to	4016	Comment or suggested mitigation	6002	Opposes project	
		Colorado River fishing		for recreation			

Crane, Jace

34	6002	Opposes project					
35	1007	Comment on water conservation	3703	Concern about impact to boating in	3804	Concern about	
economic effects to							
				the Colorado River		Colorado River boating	
	3805	Concern about economic effects to					
		Colorado River fishing					

Crespin, Arthur (Denver, CO)

1065	1008	Improved conservation plans	2701	Consider Denver Moffat Collection	3304	Concern about aquatic	
life in							
		should be developed		System Project in impacts		Colorado River	
	4021	Additional mitigation is needed					

Crespo, David

36	3304	Concern about aquatic life in	3703	Concern about impact to boating in	3704	Concern about impact	
to fishing in							
		Colorado River		the Colorado River		the Colorado River	

Cripps, Kevin

37	3304	Concern about aquatic life in	3402	Concern about impacts to West	3703	Concern about impact	
to boating in							
		Colorado River		Slope vegetation		the Colorado River	

Crocker, Melissa (Littleton, CO)

38	1008	Improved conservation plans	4001	Comment on proposed mitigation	5001	Request for extension	
of comment							
		should be developed				period	

Crouse, Matt

39	1007	Comment on water conservation	3304	Concern about aquatic life in			
		Colorado River					

Cunningham, Mac (Mtg.)

213	2710	Evaluate cumulative effect of all	3230	Use state temperature standards in	3603	Concern about impact	
to land use							
		transbasin diversions, including C-Slope		evaluating impacts		and ownership on East	
		BT and Moffat					
	3711	Evaluate impact on Colorado	3902	Assess fishing flow needs and	4023	Include measures to	
avoid impacts							
		River's potential suitability for Wild		options to meet targets in Grand		to Colorado River	
suitability as a							
		and Scenic River designation		County Stream Mgt. Plan		Wild and Scenic River	
	4024	Implement operation changes to	5005	A supplemental EIS should be			
		avoid violation of temperature		prepared			
		standards in the Colorado River					

Curfman, Jim

889	1008	Improved conservation plans	3704	Concern about impact to fishing in			
		should be developed		the Colorado River			

Current, Craig and Mari

174 1008 Improved conservation plans should be developed
6002 Opposes project
2701 Consider Denver Moffat Collection System Project in impacts
6005 Concern about complying with Senate Document 80
3210 Concern about Grand Lake water quality
6030 Other comments

Dalton, Robert K. and Lynda (Denver, CO)

40 2601 Construct a pipeline to avoid water deliveries to Grand Lake
4021 Additional mitigation is needed
6005 Concern about complying with Senate Document 80

214 3203 Comment on Three Lake water quality model
6005 Concern about complying with Senate Document 80
3210 Concern about Grand Lake water quality
6002 Opposes project

Davis, Timothy A.: Deloitte Consulting LLP (Denver, CO)

41 3153 Concern about West Slope ground water hydrology
3304 Concern about aquatic life in Colorado River
3605 Concern about impact to agriculture

Deane, Richard L. (Denver, CO)

42 6030 Other comments

Delaney, Kevin (Tabernash, CO)

175 1008 Improved conservation plans should be developed
3002 General concern about environmental impacts on the West Slope
6002 Opposes project

Dewey, Marv (Granby, CO)

43 6002 Opposes project

Dils, Karen (Buena Vista, CO)

215 1008 Improved conservation plans should be developed
3230 Use state temperature standards in evaluating impacts
3902 Assess fishing flow needs and options to meet targets in Grand County Stream Mgt. Plan
5005 A supplemental EIS should be prepared
2603 Consider non-structural alternatives such as water conservation and dry year leasing of irrigation water
3310 Other comment about West Slope aquatic life
4023 Include measures to avoid impacts to Colorado River suitability as a Wild and Scenic River
2710 Evaluate cumulative effect of all transbasin diversions, including C-BT and Moffat
3711 Evaluate impact on Colorado River's potential suitability for Wild and Scenic River designation
4024 Implement operation changes to avoid violation of temperature standards in the Colorado River

Dines, Darren and Leslie

45 6002 Opposes project

Dines, Dorothy

44 1008 Improved conservation plans should be developed

Docheff, Jodi

176 6002 Opposes project

Drewett, James

365 1008 Improved conservation plans should be developed
3002 General concern about environmental impacts on the West Slope

East, Marvin R.

47 3104 Concern about impact on Colorado River hydrology

Eberhard, Michael (Fraser, CO)

177 1008 Improved conservation plans should be developed

2600 Suggested new alternative

3020 Other substantive comment on affected environment and effects

3133 Concern about water rights

Edelson, Rick

48 1006 Believes conservation would eliminate need for project

3001 Concern about overall environmental impacts

Ehlen, John (Fraser, CO)

49 2707 Effect of climate change should be evaluated

3103 Comment on hydrologic model

3104 Concern about impact on Colorado River hydrology

366 2707 Effect of climate change should be evaluated

3103 Comment on hydrologic model

Eichler, Dirk: Water's Edge Reclamation (Fraser, CO)

50 3901 Consider Grand County Stream Management Plan

5001 Request for extension of comment period

Eller, Ron (Fraser, CO)

178 1008 Improved conservation plans should be developed

2701 Consider Denver Moffat Collection System Project in impacts

3002 General concern about environmental impacts on the West Slope

3901 Consider Grand County Stream Management Plan

4021 Additional mitigation is needed

Ellis, Sally A. (Boulder, CO)

216 1008 Improved conservation plans should be developed

3719 Concern about West Slope recreation impacts

6002 Opposes project

Emslie, Bill: Platte River Power Authority (Fort Collins, CO)

367 2202 Comment supports Proposed Action

Erwin, John (Fraser, CO)

52 1008 Improved conservation plans should be developed

5001 Request for extension of comment period

368 1008 Improved conservation plans should be developed

2103 Comment supports No Action alternative

2602 Consider conservation as an alternative

Faaborg, Roger (Loveland, CO)

53 3001 Concern about overall environmental impacts

6002 Opposes project

Fehr, Todd (Greenwood Village, CO)

1068 2701 Consider Denver Moffat Collection System Project in impacts

3304 Concern about aquatic life in Colorado River

4021 Additional mitigation is needed

Fender, Sharon and Dan

179 1008 Improved conservation plans should be developed

4021 Additional mitigation is needed

Fenton, Connie

54 1006 Believes conservation would eliminate need for project

2701 Consider Denver Moffat Collection System Project in impacts

3210 Concern about Grand Lake water quality

3901 Consider Grand County Stream Management Plan

4021 Additional mitigation is needed

5001 Request for extension of comment period

Foley, Ian (Denver, CO)

56 2105 Comment on No Action

3720 Concern about impact to boating in

3721 Concern about impact to boating in

		facilities/operation		the Big Thompson River		North St. Vrain or St. Vrain Creek	
	4016	Comment or suggested mitigation for recreation	4021	Additional mitigation is needed			
	Ford, Alan						
180	1008	Improved conservation plans should be developed					
	Fosmire, Brenda						
181	1008	Improved conservation plans should be developed	6002	Opposes project			
	Frame, Ann and Jerry (Grand Lake, CO)						
909	6002	Opposes project					
	French, Rhonda (Loveland, CO)						
410	3133	Concern about water rights					
	Gardner, Dave (Colorado Springs, CO)						
474	6002	Opposes project					
	Gibson, Jeff (Rancho Del Rio, CO)						
916	6002	Opposes project					
	Gillis, Kenneth (Denver, CO)						
1071	1008	Improved conservation plans should be developed	3002	General concern about environmental impacts on the West Slope	3153	Concern about West Slope ground water hydrology	
	3204	Comment on QUAL2K model	3304	Concern about aquatic life in Slope wetlands and riparian habitat	3422	Concern about impacts to West Colorado River	
	Gilmore, Donna (Denver, CO)						
60	1008	Improved conservation plans should be developed	4021	Additional mitigation is needed	5001	Request for extension of comment period	
	Goldenberg, Stewart: Farmers Insurance (Lakewood, CO)						
61	1006	Believes conservation would eliminate need for project					
	Goodwin, Patty						
921	3002	General concern about environmental impacts on the West Slope	3206	Concern about Colorado River water quality	3304	Concern about aquatic life in Colorado River	
	3402	Concern about impacts to West Slope vegetation	3719	Concern about West Slope recreation impacts	3815	Concern about impact to West Slope tourism	
	Green, Mary Jane						
62	1008	Improved conservation plans should be developed	4020	Other suggested mitigation			
	Griggs, Grace (Keenesburg, CO)						
63	1008	Improved conservation plans should be developed	4021	Additional mitigation is needed	5001	Request for extension of comment period	
	Grimes, Harold						
182	3104	Concern about impact on Colorado River hydrology					
	Haire, Marcy (Loveland, CO)						
65	1007	Comment on water conservation to Grand Lake	3308	Concern about aquatic life in recreation at Grand Lake	3708	Concern about impact to	
	6002	Opposes project					
	Hall, Chris: Cutthroat Anglers (Silverthorne, CO)						
1110	6005	Concern about complying with Senate Document 80					

Hanzel, Karl (Boulder, CO)

929 1008 Improved conservation plans should be developed

Harder, Cindy: Vaquera Enterprises (Granby, CO)

183 1008 Improved conservation plans should be developed
3809 Concern about West Slope economic effects

Harrelson, Gary

370 3809 Concern about West Slope economic effects

Hathaway, Wm. E. and Helen S.

66 1008 Improved conservation plans should be developed

Hedlund, Roger (Tabernath, CO)

64 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3901 Consider Grand County Stream Management Plan

Hess, James C.

184 1006 Believes conservation would eliminate need for project
3506 Concern about impacts to wildlife at Chimney Hollow Reservoir

Hilgenberg, Mel: Legacy Leadership Center (Fort Collins, CO)

413 2000 Alternatives
6030 Other comments

Hites, Sylvia

371 1008 Improved conservation plans should be developed
2600 Suggested new alternative
3229 Concern about Three Lakes water quality

Hobbs, Michael (Northglenn, CO)

224 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3304 Concern about aquatic life in Colorado River
4021 Additional mitigation is needed
5001 Request for extension of comment period

Hollrah, Paul (Winter Park, CO)

68 2707 Effect of climate change should be evaluated complying with
3103 Comment on hydrologic model
6005 Concern about Senate Document 80

372 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3209 Concern about Shadow Mountain water quality
3210 Concern about Grand Lake water quality
3231 Concern about increase in Colorado River temperature
3304 Concern about aquatic life in Colorado River
3805 Concern about economic effects to Colorado River fishing
3901 Consider Grand County Stream Management Plan
4006 Comment or suggested mitigation for water quality
5001 Request for extension of comment period

Holmberg, Steve

185 3809 Concern about West Slope economic effects
6002 Opposes project

Howe, Charles W.

70 3820 Comment on other economic effects
6002 Opposes project

Hubbard, Graydon D.

71 4020 Other suggested mitigation
6002 Opposes project

Hughes, Kent (Fraser, CO)

72 6002 Opposes project

Hut, Martha (Tabernash, CO)

939 3901 Consider Grand County Stream Management Plan
4021 Additional mitigation is needed

Ingram, Kent

1081 1008 Improved conservation plans should be developed
3133 Concern about water rights
3206 Concern about Colorado River flows will result in more Didymo algae
3317 Concern about Zebra or Quagga mussels
6005 Concern about complying with Senate Document 80
2701 Consider Denver Moffat Collection System Project in impacts
3153 Concern about West Slope ground water hydrology
3229 Concern about Three Lakes water quality
3901 Consider Grand County Stream Management Plan
6030 Other comments
3104 Concern about impact on Colorado River hydrology
3164 Concern about stream morphology/floodplain
3233 Concern lower flushing water quality
4001 Comment on proposed mitigation

James, Gorton T. (Denver, CO)

225 1008 Improved conservation plans should be developed

Jameson, Kathy (Fraser, CO)

73 1008 Improved conservation plans should be developed
3805 Concern about economic effects to Colorado River fishing
3304 Concern about aquatic life in Colorado River
6002 Opposes project
3804 Concern about economic effects to Colorado River boating

Johannes, Bob (Mtg.) (Fraser, CO)

74 2701 Consider Denver Moffat Collection System Project in impacts
3001 Concern about overall environmental impacts
6002 Opposes project

Johannes, Marie (Fraser, CO)

186 4021 Additional mitigation is needed

Johnson, Dave (Lafayette, CO)

944 6002 Opposes project

Johnson, David

75 3304 Concern about aquatic life in Colorado River
6002 Opposes project
3805 Concern about economic effects to Colorado River fishing
5001 Request for extension of comment period

Johnson, Diedrich

945 2701 Consider Denver Moffat Collection System Project in impacts
3210 Concern about Grand Lake water quality
3809 Concern about West Slope economic effects
3103 Comment on hydrologic model
3304 Concern about aquatic life in Colorado River
3901 Consider Grand County Stream Management Plan
3206 Concern about Colorado River water quality
3605 Concern about impact to agriculture

Johnson, Michael

187 3703 Concern about impact to boating in the Colorado River
3704 Concern about impact to fishing in the Colorado River

Johnson, Paul

76 6002 Opposes project

Johonnes, Bob

374 2701 Consider Denver Moffat Collection System Project in impacts

Kahn, Jonathan: Confluence Kayaks (Denver, CO)

1110 6005 Concern about complying with Senate Document 80

Kaplysh, Ted

77 1008 Improved conservation plans

		should be developed				
	Kastengren, Jim: University of Colorado					
78	3001	Concern about overall environmental impacts	5001	Request for extension of comment period		
	Kerr, Jeanne					
79	1008	Improved conservation plans should be developed	3001	Concern about overall environmental impacts	4021	Additional mitigation is needed
	6002	Opposes project				
	Keyser, John					
80	1008	Improved conservation plans should be developed	3103	Comment on hydrologic model	3104	Concern about impact on Colorado River hydrology
	4021	Additional mitigation is needed				
	Kilpatrick, W. Kirby					
81	6002	Opposes project				
	Kitchens, Scott (Denver, CO)					
226	4021	Additional mitigation is needed	6002	Opposes project		
	Klancke, Kirk: East Grand Water Quality Board (Fraser, CO)					
376	1006	Believes conservation would eliminate need for project	2701	Consider Denver Moffat Collection System Project in impacts	3133	Concern about water rights
	3210	Concern about Grand Lake water quality	3901	Consider Grand County Stream Management Plan	4021	Additional mitigation is needed
	Klancke, Marianne					
1083	2701	Consider Denver Moffat Collection System Project in impacts	3901	Consider Grand County Stream Management Plan		
	Kleh, Cindy (Grand Lake, CO)					
82	1008	Improved conservation plans should be developed	3815	Concern about impact to West Slope tourism	6002	Opposes project
	Kohler, Mara (Winter Park, CO)					
188	1008	Improved conservation plans should be developed	2701	Consider Denver Moffat Collection System Project in impacts	3901	Consider Grand County Stream Management Plan
	4021	Additional mitigation is needed				
	Kohler, Richard (Winter Park, CO)					
83	1008	Improved conservation plans should be developed	6002	Opposes project		
	Kondratieff, Dr. Boris C.: Colorado State University (Fort Collins, CO)					
189	3304	Concern about aquatic life in Colorado River				
	Koski, Carridy (Broomfield, CO)					
84	1008	Improved conservation plans should be developed				
	Kratz, Allyn (Colorado Springs, CO)					
1087	1008	Improved conservation plans should be developed	3231	Concern about increase in Colorado River temperature	3304	Concern about aquatic life in Colorado River
	Krening, Daniel (Centennial, CO)					
190	1008	Improved conservation plans should be developed	3704	Concern about impact to fishing in the Colorado River	6002	Opposes project
	Lani, Kurt and Julene (Tabernash, CO)					
191	1008	Improved conservation plans should be developed	3304	Concern about aquatic life in Colorado River	3305	Concern about aquatic life in Willow Creek
	3809	Concern about West Slope economic effects				

LaRocca, Rico

192	1008	Improved conservation plans should be developed				

Lee, Stephen

86	1008	Improved conservation plans should be developed	3206	Concern about Colorado River water quality	3703	Concern about impact to boating in the Colorado River
	3704	Concern about impact to fishing in the Colorado River				

Legner, Diane (Bayfield, CO)

87	1008	Improved conservation plans should be developed	5001	Request for extension of comment period		

Linin, Kim

88	1008	Improved conservation plans should be developed	2701	Consider Denver Moffat Collection System Project in impacts	3210	Concern about Grand Lake water quality
	3901	Consider Grand County Stream Management Plan	4021	Additional mitigation is needed		

Linn, Scott: Winter Park Optical (Fraser, CO)

1110	6005	Concern about complying with Senate Document 80				

Lipke, Jeff

89	1008	Improved conservation plans should be developed	2701	Consider Denver Moffat Collection System Project in impacts	4021	Additional mitigation is needed

Lombardo, Aldo (Littleton, CO)

90	1007	Comment on water conservation				

Long, Kimbal (Granby, CO)

957	3002	General concern about environmental impacts on the West Slope				

Love, Linda

231	3304	Concern about aquatic life in Colorado River				

Lucero, Deb (Tabernash, CO)

92	3001	Concern about overall environmental impacts				

Lynd, Debra

194	3002	General concern about environmental impacts on the West Slope				

MacGregor, Darcy (Mtg.) (Fraser, CO)

93	1008	Improved conservation plans should be developed	2602	Consider conservation as an alternative		

MacPhail, Kristyn (Lakewood, CO)

94	1008	Improved conservation plans should be developed	4021	Additional mitigation is needed	5001	Request for extension of comment period

Martin, Seth: Devil's Thumb Ranch (Tabernash, CO)

1110	6005	Concern about complying with Senate Document 80				

Matteson, John Drew (Fraser, CO)

233	1008	Improved conservation plans should be developed				
234	2701	Consider Denver Moffat Collection System Project in impacts				

McCollom, Scott (Broomfield, CO)

95	1008	Improved conservation plans	4021	Additional mitigation is needed	5001	Request for extension

of comment
should be developed period

McConnell, Charles

418 1008 Improved conservation plans should be developed 3901 Consider Grand County Stream Management Plan

McMillen, Keli: Prudential Winter Park Realtors (Winter Park, CO)

96 5001 Request for extension of comment period

McWilliams, Tom (Littleton, CO)

1095 2601 Construct a pipeline to avoid water deliveries to Grand Lake 3210 Concern about Grand Lake water quality 6005 Concern about complying with Senate Document 80

Medina, Rob: West Denver TU

196 6002 Opposes project

Mesec, Patricia F. (Littleton, CO)

97 1008 Improved conservation plans should be developed 3001 Concern about overall environmental impacts 6002 Opposes project

Metz, Jennifer: Fraser Valley Properties

98 1008 Improved conservation plans should be developed 2701 Consider Denver Moffat Collection System Project in impacts 3210 Concern about Grand Lake water quality
3901 Consider Grand County Stream Management Plan 4021 Additional mitigation is needed 5001 Request for extension of comment period

Mierau, Dr. Gary (Denver, CO)

99 6002 Opposes project

Mierau, Jamie (Washington, DC)

100 1008 Improved conservation plans should be developed 4021 Additional mitigation is needed 5001 Request for extension of comment period

Mijer, Fritz (Denver, CO)

1098 1008 Improved conservation plans should be developed 4021 Additional mitigation is needed

Miller, Jean (Tabernash, CO)

102 1008 Improved conservation plans should be developed 4021 Additional mitigation is needed

Miller, Lane

101 6002 Opposes project

Miller, Ray (Grand Lake, CO)

383 2707 Effect of climate change should be evaluated 3002 General concern about environmental impacts on the West Slope 3206 Concern about Colorado River water quality
3210 Concern about Grand Lake water quality 4000 General mitigation comment

Miller, Ray (Mtg.) (Grand Lake, CO)

1099 1008 Improved conservation plans should be developed 2707 Effect of climate change should be evaluated 3210 Concern about Grand Lake water quality
3229 Concern about Three Lakes water quality 3231 Concern about increase in Colorado River temperature 3304 Concern about aquatic life in Colorado River
3422 Concern about impacts to West Slope wetlands and riparian habitat 4000 General mitigation comment

Misbach, Neal

103 1008 Improved conservation plans should be developed 2701 Consider Denver Moffat Collection System Project in impacts 3210 Concern about Grand Lake water quality
3901 Consider Grand County Stream 4021 Additional mitigation is needed 5001 Request for extension

of comment
Management Plan
period

Montgomery, Kent (Littleton, CO)

105 5001 Request for extension of comment period
6002 Opposes project

Moore, Arlan

1102 1008 Improved conservation plans should be developed

Morris, Katherine

384 3002 General concern about environmental impacts on the West Slope
3707 Concern about impact to recreation at Shadow Mountain Reservoir

Mortenson, Malene (Grand Lake, CO)

385 1007 Comment on water conservation change should be
1008 Improved conservation plans should be developed
2707 Effect of climate evaluated
3020 Other substantive comment on affected environment and effects

Mortenson, Malene (Mtg.)

106 1008 Improved conservation plans change should be
should be developed
2701 Consider Denver Moffat Collection System Project in impacts
2707 Effect of climate evaluated
3103 Comment on hydrologic model

Mulcahy, Patrick (Denver, CO)

197 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3304 Concern about aquatic life in Colorado River
4021 Additional mitigation is needed
5001 Request for extension of comment period

Nelson, Ron

107 1008 Improved conservation plans should be developed
6002 Opposes project

Neubecker, Ken (Carbondale, CO)

1104 1008 Improved conservation plans should be developed including C-BT and Moffat
2701 Consider Denver Moffat Collection System Project in impacts
2710 Evaluate cumulative effect of all transbasin diversions,
3104 Concern about impact on Colorado River hydrology
3206 Concern about Colorado River water quality
3304 Concern about aquatic life in Colorado River
4021 Additional mitigation is needed should be
4026 The Grand County Stream Management Plan should be used for mitigation
5005 A supplemental EIS prepared
6030 Other comments

Nielsen, Ed

198 6002 Opposes project

Nissen, Jerry (Fraser, CO)

109 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3210 Concern about Grand Lake water quality
4021 Additional mitigation is needed
5001 Request for extension of comment period

No Name (Mtg.)

4 1007 Comment on water conservation of comment
2601 Construct a pipeline to avoid water deliveries to Grand Lake
5001 Request for extension period
6005 Concern about complying with

		Senate Document 80				
	Nowak, Dave					
110	3206	Concern about Colorado River water quality	3304	Concern about aquatic life in Colorado River	6002	Opposes project
	Nowak, Linda					
111	3815	Concern about impact to West Slope tourism	6002	Opposes project		
	Nyberg, Harvey (Denver, CO)					
970	1008	Improved conservation plans should be developed	2710	Evaluate cumulative effect of all transbasin diversions, including C-BT and Moffat	6002	Opposes project
	O'Donnell, Bruce C (Grand Lake, CO)					
971	2601	Construct a pipeline to avoid water deliveries to Grand Lake	3210	Concern about Grand Lake water quality	6002	Opposes project
	6005	Concern about complying with Senate Document 80				
	Obmascik, Mark (Denver, CO)					
1153	3319	Comment on whirling disease for recreation	4016	Comment or suggested mitigation		
	O'Donnell, Bruce C. (Grand Lake, CO)					
1109	2601	Construct a pipeline to avoid water deliveries to Grand Lake	3210	Concern about Grand Lake water quality	6002	Opposes project
	6005	Concern about complying with Senate Document 80				
	Osborn, George (Hotchkiss, CO)					
238	4021	Additional mitigation is needed	6002	Opposes project		
	Pacheco, Jason (Mtg.) (Tabernash, CO)					
113	1008	Improved conservation plans should be developed				
	Palmer, Wes (Kremmling, CO)					
115	3304	Concern about aquatic life in Colorado River	6005	Concern about complying with Senate Document 80		
	Palmite, Eric (Mtg.) (Winter Park, CO)					
114	3704	Concern about impact to fishing in the Colorado River				
	Parks, Sarah					
116	1008	Improved conservation plans should be developed	6002	Opposes project		
	Pelaez, Jennifer (Fraser, CO)					
117	1008	Improved conservation plans should be developed	2102	Why isn't No Action the status quo	2701	Consider Denver Moffat Collection System Project in impacts
	3103	Comment on hydrologic model	3703	Concern about impact to boating in the Colorado River	4002	Comment or suggested mitigation for project in general
	4016	Comment or suggested mitigation for recreation				
	Petersen, Jack G. (Glenwood Springs, CO)					
201	3002	General concern about environmental impacts on the West Slope				
	Petersen, Pete and Carol: Colorado River Ranch (Kremmling, CO)					
118	3608	Concern about ability to divert water from the Colorado River	4015	Comment or suggested mitigation for land use		
	Peterson, Jim: Grand Lake					
119	1008	Improved conservation plans should be developed				

Peterson, Tom (Fort Collins, CO)

1143 2202 Comment supports Proposed Action

Pogoriler, Anne (Denver, CO)

120 1008 Improved conservation plans should be developed
4021 Additional mitigation is needed
5001 Request for extension of comment period

Powell, Helena: Adventures in White Water Rafting (Tabernash, CO)

121 2701 Consider Denver Moffat Collection System Project in impacts
3804 Concern about economic effects to Colorado River boating
5001 Request for extension of comment period

Ralch, Peter

391 2707 Effect of climate change should be evaluated
2708 Comment on mountain pine beetle trees
3153 Concern about West Slope ground water hydrology

Ralph, Peter

984 2707 Effect of climate change should be evaluated
2708 Comment on mountain pine beetle trees
3153 Concern about West Slope ground water hydrology

Raney, Pat: Grand Lake Shoreline Association

392 1008 Improved conservation plans should be developed
3210 Concern about Grand Lake water quality

Rau, Charles (Mtg.) (Fraser, CO)

122 2103 Comment supports No Action alternative
2600 Suggested new alternative
2701 Consider Denver Moffat Collection System Project in impacts
3206 Concern about Colorado River water quality

Ready, Terry W.

123 1008 Improved conservation plans should be developed

Reed, Dale

393 3209 Concern about Shadow Mountain to West Slope water quality
3719 Concern about West Slope recreation impacts
3815 Concern about impact tourism
3820 Comment on other economic effects

Reed, Richard and Susan (Granby, CO)

1113 6002 Opposes project
6030 Other comments

Reid, Chuck (Littleton, CO)

124 1008 Improved conservation plans should be developed
3001 Concern about overall environmental impacts
3809 Concern about West Slope economic effects

Reynolds, Rich (Evergreen, CO)

989 1008 Improved conservation plans should be developed
3104 Concern about impact on Colorado River hydrology
3231 Concern about increase in Colorado River temperature
3304 Concern about aquatic life in Colorado River

Rich, Robert S. (Granby, CO)

241 3002 General concern about Colorado River environmental impacts on the West Slope
3153 Concern about West Slope ground water hydrology
3206 Concern about water quality
3231 Concern about increase in to bird life Colorado River temperature
3422 Concern about impacts to West Slope wetlands and riparian habitat
3511 Concern about effects along Colorado River
3608 Concern about ability to divert

		water from the Colorado River				
	Rinker, Robert A. (Aurora, CO)					
202	1008	Improved conservation plans should be developed				
	Risch, Lee					
242	1008	Improved conservation plans should be developed				
	Roark, Len					
420	2202	Comment supports Proposed Action				
	Rozean, Bonnie (Granby, CO)					
243	6002	Opposes project				
	Rudis, Mark A. (Winter Park, CO)					
126	6000	Other Comments				
	Sage, Fred (Boulder, CO)					
993	6030	Other comments				
	Salisbury, John and Alicia					
128	3210	Concern about Grand Lake water quality	6002	Opposes project		
	Saltzman, Ed (Grand Lake, CO)					
129	6002	Opposes project				
	Schmidt, Carol and Jim					
1115	1007	Comment on water conservation Moffat Collection	1008	Improved conservation plans should be developed	2701	Consider Denver System Project in impacts
	2720	Other substantive comment on Slope ground	3104	Concern about impact on Colorado River hydrology	3153	Concern about West water hydrology
		cumulative effects and reasonable foreseeable actions				
	3210	Concern about Grand Lake water quality	3231	Concern about increase in Colorado River temperature	3304	Concern about aquatic life in Colorado River
	3552	Concern about impacts to Colorado River endangered fish	3604	Concern about impact to private property	3704	Concern about impact to fishing in the Colorado River
	3809	Concern about West Slope Stream economic effects should be used for mitigation	4001	Comment on proposed mitigation	4026	The Grand County Management Plan
	6002	Opposes project				
	Schmuck, Carl					
996	1008	Improved conservation plans should be developed	3133	Concern about water rights		
	Schmuck, Gary (Thornton, CO)					
997	3133	Concern about water rights Colorado River	3304	Concern about aquatic life in	6002	Opposes project
	Schroeder, Fred (Grand Lake, CO)					
1144	2601	Construct a pipeline to avoid water deliveries to Grand Lake	4006	Comment or suggested mitigation for water quality	6002	Opposes project
	Shaffer, Gay (Grand Lake, CO)					
394	3210	Concern about Grand Lake water quality	6002	Opposes project		
	Sidofsky, Carol (Winter Park, CO)					
1116	1008	Improved conservation plans should be developed	3104	Concern about impact on Colorado River hydrology	3210	Concern about Grand Lake water quality
	3304	Concern about aquatic life in Stream	3815	Concern about impact to West	3901	Consider Grand County

Colorado River
Slope tourism
Management Plan

6030 Other comments

Slater, Linda (Westminster, CO)

132 3001 Concern about overall environmental impacts

Smith Jr., Douglas M.

245 6002 Opposes project

Smith, Douglas

395 1008 Improved conservation plans should be developed
2103 Comment supports No Action alternative
3304 Concern about aquatic life in Colorado River
3306 Concern about aquatic life in Granby Reservoir
5001 Request for extension of comment period

Soles, Dennis K. (Fraser, CO)

133 2701 Consider Denver Moffat Collection System Project in impacts additional WTP requirements with lower flows
3001 Concern about overall environmental impacts
3232 Concern about and/or WWTP
3901 Consider Grand County Stream Management Plan

Solomon, Leon

134 6002 Opposes project

Sorter, Jason

421 3001 Concern about overall environmental impacts
4021 Additional mitigation is needed

Southway, Cindy (Grand Lake, CO)

135 4001 Comment on proposed mitigation
4020 Other suggested mitigation
6000 Other Comments
1009 1003 Believes project is not necessary
1008 Improved conservation plans should be developed
2103 Comment supports No Action alternative
3101 Comment on West Slope affected environment hydrology
3203 Comment on Three Lake water quality model
3209 Concern about Shadow Mountain water quality
3210 Concern about Grand Lake water quality
3213 Other comment on West Slope water quality
3608 Concern about ability to divert water from the Colorado River
3703 Concern about impact to boating in the Colorado River
3719 Concern about West Slope recreation impacts
3777 Other comments on West Slope visual quality
3809 Concern about West Slope economic effects
4000 General mitigation comment
4006 Comment or suggested mitigation for water quality
4016 Comment or suggested mitigation for recreation should be used for mitigation
4020 Other suggested mitigation
4026 The Grand County Stream Management Plan
5006 The WGFP and Moffat Project should be combined in one EIS
6030 Other comments

Stahl, John

397 3203 Comment on Three Lake water quality model
3210 Concern about Grand Lake water quality

Stahl, Rosie

137 6000 Other Comments

Stanko, Paul

138 3002 General concern about environmental impacts on the West Slope

Stark, George

1011 3005 Concern that EIS inadequately addresses the environmental impacts

6002 Opposes project

Stauffer, Norman (Grand Lake, CO)

1146 3231 Concern about increase in Colorado River temperature

3304 Concern about aquatic life in Colorado River

3815 Concern about impact to West Slope tourism

4007 Comment or suggested mitigation for aquatic resources

Stenicka, John (Fraser, CO)

139 1008 Improved conservation plans should be developed

5001 Request for extension of comment period

Stockley, Karen (Berthoud, CO)

422 1008 Improved conservation plans should be developed

2600 Suggested new alternative

2603 Consider non-structural alternatives such as water conservation and dry year leasing of irrigation water

3423 Concern about impacts to East Slope wetlands and riparian habitat

3506 Concern about impacts to wildlife at Chimney Hollow Reservoir

3607 Concern about impacts to traffic

4009 Comment or suggested mitigation for wildlife

Stow, John

140 3001 Concern about overall environmental impacts

3804 Concern about economic effects to Colorado River boating

3805 Concern about economic effects to Colorado River fishing

Straka, Gayle

141 4003 Comment or suggested mitigation for surface water flow

6002 Opposes project

Strauss, Richard (Arvada, CO)

1017 3231 Concern about increase in Colorado River temperature

3304 Concern about aquatic life in Colorado River

1018 6030 Other comments

Streb, Bob: Fly Fishing Outfitters (Avon, CO)

1110 6005 Concern about complying with Senate Document 80

Strohmeier, Scott (Arvada, CO)

142 1008 Improved conservation plans should be developed

3001 Concern about overall environmental impacts

4021 Additional mitigation is needed

6002 Opposes project

Sullivan, Jim and Martha

203 1008 Improved conservation plans should be developed

4021 Additional mitigation is needed

Sutherland, Jason

143 1008 Improved conservation plans should be developed

2601 Construct a pipeline to avoid water deliveries to Grand Lake

3209 Concern about Shadow Mountain water quality

3210 Concern about Grand Lake water quality

Taylor, LeRoy (Winter Park, CO)

144 1003 Believes project is not necessary

1008 Improved conservation plans

2701 Consider Denver Moffat Collection

should be developed System Project in impacts

Tetreault, Josh (Lakewood, CO)

145 1008 Improved conservation plans should be developed
3703 Concern about impact to boating in the Colorado River
3704 Concern about impact to fishing in the Colorado River
3805 Concern about economic effects to Colorado River fishing
6002 Opposes project

Thompson, Anita (Kremmling, CO)

1122 6002 Opposes project

Thompson, Bill

1140 3608 Concern about ability to divert water from the Colorado River
6005 Concern about complying with Senate Document 80

Thompson, Bill (Kremmling, CO)

146 3608 Concern about ability to divert water from the Colorado River

Thompson, Jeff (Longmont, CO)

423 1002 Does not agree with purpose and/or need
5001 Request for extension of comment period

1123 1002 Does not agree with purpose and/or need
1005 Concern about projected water demand
3005 Concern that EIS inadequately addresses the environmental impacts

Thompson, Wendy (Kremmling, CO)

147 4002 Comment or suggested mitigation for project in general

399 3608 Concern about ability to divert water from the Colorado River

Thorpe, Robert W.: R.W. Thorpe & Associates, Inc. (Seattle, WA)

148 2202 Comment supports Proposed Action
4015 Comment or suggested mitigation for land use

Tod, Marty

149 1008 Improved conservation plans should be developed
2103 Comment supports No Action alternative
3002 General concern about environmental impacts on the West Slope
6002 Opposes project

Trammell, John (Grand Junction, CO)

248 1008 Improved conservation plans should be developed
2707 Effect of climate change should be evaluated

Turnbull, William and Kathleen (Granby, CO)

151 1008 Improved conservation plans should be developed
2701 Consider Denver Moffat Collection System Project in impacts
3809 Concern about West Slope economic effects
3901 Consider Grand County Stream Management Plan
4021 Additional mitigation is needed
6002 Opposes project

Vail, Mike: Water Legacy

205 1007 Comment on water conservation
1008 Improved conservation plans should be developed

Van Horn, Jack (Fraser, CO)

153 1008 Improved conservation plans should be developed

Varney, Larry (Grand Lake, CO)

154 3153 Concern about West Slope ground water hydrology
4021 Additional mitigation is needed
6002 Opposes project

Venezia, Howard (Winter Park, CO)

155 1008 Improved conservation plans should be developed
6002 Opposes project

Voelker, John

1030 3206 Concern about Colorado River water quality
6002 Opposes project

VonHolt, Nicole (Granby, CO)

1128 3001 Concern about overall environmental impacts
6002 Opposes project

Walck, Gregory

249 3304 Concern about aquatic life in Colorado River

Waldow, Eileen (Fraser, CO)

1129 1008 Improved conservation plans should be developed
3001 Concern about overall environmental impacts

Waldow, Tom

1130 1008 Improved conservation plans should be developed

Waldron, Lloyd (Tabernash, CO)

156 1006 Believes conservation would eliminate need for project impacts
3002 General concern about environmental impacts on the West Slope
6002 Opposes project
1008 Improved conservation plans should be developed
3719 Concern about West Slope recreation impacts
2701 Consider Denver Moffat Collection System Project in
5001 Request for extension of comment period

Walker, Richard

1034 3422 Concern about impacts to West Slope wetlands and riparian habitat
3809 Concern about West Slope economic effects
6002 Opposes project

Ward, Steve

157 1008 Improved conservation plans should be developed
3805 Concern about economic effects to Colorado River fishing
3703 Concern about impact to boating in the Colorado River
3804 Concern about Colorado River boating economic effects to

Warrens, Bob

250 1008 Improved conservation plans should be developed
3002 General concern about environmental impacts on the West Slope

Watts, Frank and Jane (Tabernash, CO)

158 1008 Improved conservation plans should be developed
3002 General concern about environmental impacts on the West Slope
3104 Concern about impact on Colorado River hydrology

Weary Jr., Robert

251 4021 Additional mitigation is needed

Weber, Dorothy (Grand Lake, CO)

1144 2601 Construct a pipeline to avoid water deliveries to Grand Lake
4006 Comment or suggested mitigation for water quality
6002 Opposes project

Wegner, David (Durango, CO)

1132 1007 Comment on water conservation comment on reasonable
2707 Effect of climate change should be evaluated
2720 Other substantive cumulative effects and foreseeable actions

Wells, Gail (Centennial, CO)

159 1008 Improved conservation plans should be developed
3703 Concern about impact to boating in the Colorado River

Westerlund, Jon (Winter Park, CO)

1039 1006 Believes conservation would eliminate need for project
6002 Opposes project
3001 Concern about overall environmental impacts
4000 General mitigation comment

Weston, Mary Ann

424 2501 General comment on Alternative 5

Weydert, Tom: Town of Grand Lake

402 1008 Improved conservation plans should be developed
3901 Consider Grand County Stream Management Plan
2701 Consider Denver Moffat Collection System Project in impacts
5001 Request for extension of comment period
3210 Concern about Grand Lake water quality

Whitten, Holly

69 1008 Improved conservation plans should be developed
3001 Concern about overall environmental impacts
5001 Request for extension of comment period

Wiegand, Jim

425 2001 General comment about alternatives
6030 Other comments
3129 Concern about Horsetooth Reservoir hydrology
3609 General comment on land use

Wiegers, Alex: Wiegers Capital Partners LLC (Denver, CO)

160 3164 Concern about Colorado River stream morphology/floodplain
3304 Concern about aquatic life in Colorado River
4021 Additional mitigation is needed

Wilcox, Brody

161 1008 Improved conservation plans should be developed
3142 Concern about diverting water from the Fraser River

Wilcox, Douglas

162 3002 General concern about environmental impacts on the West Slope
6002 Opposes project

Williams, Dr. W.J. (Boulder, CO)

1133 4020 Other suggested mitigation

Wilson, Noel (Tabernash, CO)

1134 3001 Concern about overall environmental impacts

Wilson, Robert M. (Kremmling, CO)

207 1008 Improved conservation plans should be developed
3206 Concern about Colorado River water quality
2103 Comment supports No Action alternative
3104 Concern about impact on Colorado River hydrology

Winkleman, Scott

163 1008 Improved conservation plans should be developed
3703 Concern about impact to boating in the Colorado River

Wofford, Mitchell (Granby, CO)

1152 2602 Consider conservation as an alternative
3164 Concern about Colorado River stream morphology/floodplain
3815 Concern about impact to West Slope tourism

Wolters, Jason

164 1008 Improved conservation plans should be developed
3703 Concern about impact to boating in the Colorado River

Wood, Carl (Parshall, CO)

165 2001 General comment about alternatives
3132 Concern about WGFP yield

Wottowa, Peter (Englewood, CO)

166 1008 Improved conservation plans should be developed
6002 Opposes project

Wysocki PhD, Lawrence (Denver, CO)

1047 1007 Comment on water conservation
2720 Other substantive comment on cumulative effects and reasonable foreseeable actions

Young, Brian and Stephanie (Granby, CO)

167 2701 Consider Denver Moffat Collection System Project in impacts
3206 Concern about Colorado River water quality
3304 Concern about aquatic life in Colorado River
3552 Concern about impacts to Colorado River endangered fish
3809 Concern about West Slope economic effects
3901 Consider Grand County Management Plan
6002 Opposes project

Young, John

208 1008 Improved conservation plans should be developed
6002 Opposes project

Yust, Jim: Yust Ranch (Kremmling, CO)

168 1008 Improved conservation plans should be developed
2601 Construct a pipeline to avoid water deliveries to Grand Lake
3133 Concern about water rights
6005 Concern about complying with Senate Document 80
6030 Other comments

Zastrow, Holly

209 1008 Improved conservation plans should be developed
4021 Additional mitigation is needed

Zwick, Melanie (Winter Park, CO)

169 1008 Improved conservation plans should be developed
3002 General concern about environmental impacts on the West Slope
3229 Concern about Three Lakes water quality
3809 Concern about West Slope economic effects
3901 Consider Grand County Stream Management Plan
5001 Request for extension of comment period

Response to Individual Comments by Topic

1000 Purpose and Need

Comment: The purpose and need of the project is too narrow and limits the range of alternatives analyzed.

Response: The WGFP was initiated by the Participants because the original Windy Gap Project failed to deliver the yields that were anticipated in the 1981 EIS for the reasons discussed in more detail in Section 1.5 of the WGFP FEIS, including insufficient storage. To address the shortcomings of the Windy Gap Project, Participants determined that a cooperative project with shared storage in a new reservoir(s) would be the most efficient way to collectively firm their Windy Gap water supply. Windy Gap absolute water rights represent an existing source of water available to the Participants; however, additional infrastructure is necessary to provide reliable deliveries of this water. Thus, the purpose of the WGFP is to fix a broken project, not to develop new sources of water. Many of the WGFP Participants have additional future water needs beyond what the WGFP would supply, and will be investigating other sources of water to meet those needs. The WGFP is only functional as a collaborative effort on the part of Windy Gap Project unit holders.

Comment: The purpose and need should explain why the WGFP Participants need to meet drought year water supply needs rather than meeting average year needs and using drought management measures in drought years.

Response: Municipalities, water districts, and industrial water users require a reliable water supply for meeting demands over a reasonable range of hydrologic conditions. Reliance on an average water supply yield means that about half of the time water supplies are inadequate. The intent of the WGFP, like most reservoir projects, is to capture and store water during wet years so that it will be available during dry years. While it is generally not feasible to store sufficient water for severe droughts, reservoir storage does allow water providers to meet needs without instigating drought management measures every time yield falls below average.

Comment: The future water demand by WGFP Participants is based on population projections that are outdated in light of current economic conditions and should be updated.

Response: Reclamation and CEQ guidance on developing NEPA documents requires that agencies use the best available information. The recession has indeed had an impact on growth in the past 2 years in many previously fast-growing areas, and the Participant service areas are no exception. However, recessions are short-term economic phenomena, similar to economic boom growth. Long-term growth projections are normalized to "smooth out" cyclical high- and low-growth periods. The Colorado State Demographer's Office prepares updated statewide and county-level population projections each year. These projections incorporate local information and input, and are continually adjusted to reflect current economic conditions. The November 2008 projections show that for the counties in which the Participants are located, projected average annual growth rates range from 1.1 to 3.1 percent between 2005 and 2030. These recently projected rates are in line with those used for the WGFP Participants in the FEIS analysis and are consistent projections from Colorado's State Water Supply Initiative for the South Platte basin.

Comment: The Platte River Power Authority's future demand for water for power generation is overstated. Water needs will diminish in the future as renewable energy sources replace coal and natural gas power generation.

Response: The Platte River Power Authority (Platte River) currently provides electric service to Estes Park, Fort Collins, Loveland, and Longmont. Platte River's need to firm Windy Gap water is based on providing a reliable supply to meet the current needs of the Rawhide Power facility, not a new facility. Platte River must be able to provide reliable service to existing customers, and the Windy Gap Project has not provided reliable water deliveries as originally anticipated. The population projections made for Loveland and Longmont in the EIS, and the growth assumed for Estes Park and Fort Collins, do not factor into Platte River's need for the WGFP. Platte River is evaluating its options for additional power generation to meet future demands. New power could come from a variety of sources, several of which may require less water than the current coal-fired plant, but meeting those needs and any associated water requirement is beyond the purpose of the WGFP.

Comment: The FEIS should disclose other future sources of water supply available to the City of Longmont, including additional water available for reuse besides Windy Gap water.

Response: Information on the City of Longmont water supplies was collected from the City and the Raw Water Master Plan. Longmont obtains reuse water from municipal sources decreed for reuse and Windy Gap water when it is available. Additional information on Longmont's water supply is found in the WGFP Purpose and Need Report (ERO Resources and Harvey Economics 2005).

Comment: The EIS should provide a comparison of current gallons per capita per day (gpcd) values and those anticipated at buildout, as well as current and buildout populations.

Response: Section _1.6.2.3 in the FEIS on *Water Conservation* contains information on gpcd values for the Participants. Specific gpcd values at buildout are unknown. All of the Participants have conservation measures in place, and as the response to the next comment indicates, they will be periodically updating and implementing conservation measures in the future. Thus, gpcd values are expected to decrease in the future. The EIS includes information on Participant population projections to the year 2030.

Comment: Windy Gap Participants should increase conservation practices before building a new project and Reclamation should require Participants to implement additional conservation.

Response: The WGFP Participants will be required to maintain an approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365) as amended. Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans. These participants will be required to maintain the plans in accordance with the requirements of the Water Conservation Act of 2004, as amended, and the remaining participants, will be required to acquire a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with the Subdistrict. New participants that acquire WG shares from WGFP participants after the project is completed will also be required to have an approved plan in accordance with the requirements of the Water Conservation Act of 2004, as amended.

Comment: The City of Longmont's firm water supply is higher than disclosed in the EIS and projected need for water is overstated.

Response: The Purpose and Need Report (ERO Resources and Harvey Economics 2005) developed for the EIS included an evaluation of the water supply and demands for the City of Longmont and all of the Participants. Reclamation believes the analysis of Longmont's water supply and projected future demands are reasonable and support their participation in the WGFP.

2000 Alternatives

Comment: The No Action Alternative includes additional Windy Gap pumping and enlargement of Ralph Price Reservoir, so it is not really a no action alternative.

Response: The No Action Alternative presents what WGFP Participants would do if Reclamation does not allow the proposed connections to C-BT facilities. Consistent with CEQ guidance on what should be considered in a No Action alternative, it does not mean that agencies stop what they are doing. In the case of existing agreements, prior court decisions and CEQ guidance would define No Action as no change to existing agreements. For WG and the WGFP this means that Reclamation would continue operation under the existing agreement between Reclamation and the Subdistrict for conveyance of WG water through the C-BT Project system. (See CEQ 40 Questions, #3) This also includes foreseeable actions by the participants. For most Participants, this includes continuing to take Windy Gap deliveries and increasing those deliveries as water demand increases within the capacity of the existing Windy Gap Project facilities and available storage in Granby Reservoir. One Participant would drop out of the WGFP. The City of Longmont would pursue enlargement of Ralph Price Reservoir to store its Windy Gap water. While there is no guarantee that enlargement of Ralph Price Reservoir would acquire all of the regulatory authorizations, it is a reasonable action for the City of Longmont, and no fatal flaws were discovered in review of this alternative in the WGFP EIS. The majority of the hydrologic impacts, included under the No Action alternative entail increased Windy Gap diversions by participants which they can currently do without any infrastructure changes or additional authorizations or approvals from Reclamation. It is unreasonable to assume that Windy Gap diversions would remain status quo under the No Action Alternative or that the No Action alternative should be no diversions.

Comment: Municipalities and counties have jurisdiction over water service areas and have the ability to not expand their service areas or approve developments if demand will exceed water supplies. Thus, Participants have control over their water needs. The EIS should look at the environmental effects of municipalities and counties not approving annexation and development.

Response: The EIS discloses and evaluates the impact of the identified alternatives. The No Action Alternative is based on projected future water demand for the Participant's and not the specific decisions on that municipalities make on annexations and zoning.

Comment: The EIS should evaluate the impact of municipalities and counties approving annexations and development applications.

Response: Water demands were based on projected future water needs of the Participants and not the specific decisions that municipalities make on annexations and zoning. Indirect development-related impacts were not evaluated in the FEIS because population growth in the communities served by the WGFP is expected to occur regardless of the decision on whether to implement the project, and any effects would be similar for all alternatives.

Comment: Spring Garden Inc. requests a pipeline out of Chimney Hollow Reservoir to the Little Thompson drainage for delivery of C-BT water to District members.

Response: C-BT Project water will continue to be delivered to the District as it is now delivered. Construction of Chimney Hollow Reservoir will not change how C-BT Project water is delivered.

Comment: Why not build both Chimney Hollow and Dry Creek Reservoirs to provide additional storage and opportunities for exchanges?

Response: The proposed 90,000 AF Chimney Hollow Reservoir provides all the storage required to meet the purpose and need of the WGFP. Increasing East Slope storage would not improve yield substantially. Two East Slope reservoirs are not needed to meet the purpose and need of the proposed action.

Comment: Consider water from sources other than the Colorado River, such as the Poudre River, Yampa Project, or transfer of agricultural water rights for municipal use.

Response: The purpose of the WGFP is to improve the firm yield of the existing WGFP and the Participant's existing water rights which are from the Colorado River.

Comment: Additional water should be stored in Granby Reservoir.

Response: The WGFP may store water in Granby Reservoir only when space is available and not being used to store C-BT Project water. If Granby Reservoir fills, there is no space for Windy Gap water and any Windy Gap water already in Granby Reservoir is spilled. Thus, the need for additional storage outside of Granby Reservoir.

Comment: Consider storage of water in gravel pits.

Response: Gravel pits would not provide sufficient storage for 90,000 AF of water.

Comment: The EIS should consider a wider range of alternatives for meeting Participant water supply needs.

Response: The alternatives selection process included evaluation of 171 different project elements and multiple combinations of features. The alternatives analysis considered new reservoir sites, enlargement of existing reservoirs, aquifer storage, and reregulation of existing reservoirs. In addition, nonstructural and institutional measures were considered such as borrowing or integration with the Colorado-Big Thompson (C-BT) Project, interruptible supply contracts, purchase/leaseback arrangements and dry year options on C-BT units, and integration with Denver Water's raw water and treated water system. Alternatives were screened using Clean Water Act 404(b)(1) Guidelines, in cooperation with the U.S. Army Corps of Engineers to identify a range of reasonable alternatives that would minimize environmental impacts and meet the project purpose and need. See also response to comments on the project purpose and need in Section 1000 above.

Comment: Consider non-structural alternatives such as water conservation and dry year leasing of irrigation water.

Response: All of the WGFP Participants have implemented conservation measures, and are continuing to evaluate additional measures to reduce water demand and extend supplies. As previously stated, WGFP Participants have committed to maintaining a state-approved water conservation plan prior to delivery of any WGFP water. While conservation is a key component of meeting existing and future water needs for all of the Participants, firming delivery from existing sources of water supply, such as the WGFP, also is needed to meet projected demands. Continued improvements in water conservation may delay the need for additional water, but projected population growth and business development will require additional water supplies. WGFP Participants may individually consider other sources of water supply to meet water needs not satisfied by the WGFP and planned conservation measures. Dry year leasing would not provide a reliable every year supply of water to meet future water needs.

Comment: Instead of pumping Windy Gap and C-BT water from Granby Reservoir to Shadow Mountain Reservoir, water should be routed around Shadow Mountain and Grand Lake to improve lake water quality.

Response: Modifications in C-BT facilities around Grand Lake is beyond the scope of the proposed WGFP. Modifications to C-BT facilities would require Congressional authorization, funding, and review under the National Environmental Policy Act.

2700 Reasonably Foreseeable Actions

Comment: The EIS should consider the cumulative impacts associated with both the WGFP and the Moffat Collection System Project.

Response: The WGFP FEIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as other reasonably foreseeable future actions. The cumulative effects analysis included hydrologic modeling of the Moffat Project including changes in Fraser River, Williams Fork, and Blue River flows. Hydrologic impacts of the Moffat Project are actually overstated in the WGFP analysis because Denver's Blue River demands are 30,000 AF less than used in the hydrologic modeling for the WGFP. Denver Water changed their Blue River demand after the hydrologic modeling for the WGFP was completed. The cumulative effects analysis for water quality, aquatics, and other resources were analyzed in the same level of detail as the direct impact of the WGFP.

Comment: The cumulative effects analysis should consider the historical impacts associated with the Colorado-Big Thompson Project, Denver Water, past Windy Gap operations, and any anticipated future projects.

Response: The affected environment sections of the EIS, particularly the Surface Water Hydrology section, describe historical hydrologic conditions and the various actions and projects that have contributed to existing conditions. The same models used to assess the direct hydrologic impact of the alternatives were used to evaluate the cumulative hydrologic impacts. The hydrologic model incorporated all past actions that have affected, and continue to affect hydrology, with the estimated hydrologic consequences of all reasonably foreseeable future actions and the effect of the WGFP alternatives. Hydrologic modeling of cumulative impacts, which included past, present, and reasonably foreseeable actions, was then used to evaluate impacts to other water-dependent resources. Tables 3-1 and 3-20 were added to the FEIS to better illustrate the effect of past and current actions on Colorado River streamflow. The existing hydrologic conditions presented in the EIS provide an accurate baseline from which to then make reasonable comparisons of the impacts of each of the alternatives.

Comment: Climate change and the potential impacts on precipitation, temperature, and runoff should be considered as a reasonably foreseeable action.

Response: The potential for climate change, both globally and in Colorado, and in the Upper Colorado River basin where Windy Gap diversions are located, has been identified by a variety of studies. The amount and direction of climatic change has been investigated in several studies. Although differences in climate model results demonstrate the uncertainty in projecting future climate conditions, the anticipated effects of warmer temperatures in the Colorado River basin upstream of Windy Gap, as identified by a recent Colorado Water Conservation Board report (CWCB 2010), include:

- Average annual runoff increases by about 5 percent;
- Average year-round temperature increase of about 1.8°C;

- Peak runoff in May rather than June as currently happens;
- Higher than current average runoff in April and May;
- Lower than current average runoff in the late summer-fall months;
- Decreased baseflow from ground water in late summer;
- Reduced soil moisture in summer and longer growing seasons extended by an estimated 18 days split equally between the spring and fall;
- A shift from snow to rain in the early and late winter months due to increased temperatures; and
- Greater loss of water by evapotranspiration.

The discussion of climate change in Section 2.8.2 Reasonably Foreseeable Actions was updated in the FEIS to include information from recent publications on climatic change trends in the Upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation for applicable resources in Chapter 3 of the FEIS.

Comment: Pine beetle-killed trees have the potential for hydrologic and water quality impacts in the upper Colorado River basin and should be evaluated in the EIS.

Response: A quantitative evaluation of the effects of pine bark beetle infestation on hydrology and water quality is difficult to accurately predict because of the numerous assumptions that would be necessary. The FEIS indicates the types of effects that could occur as a result of pine beetle-killed trees, such as wildfire, increased runoff, greater sediment and nutrient delivery to streams, and higher stream temperatures. These impacts are possible with or without the WGFP, and would be similar for all of the alternatives. Additional discussion was added in Section 2.8.2.1 of the FEIS on the potential impact of pine bark beetle-killed trees. Proposed nutrient and temperature mitigation measures on the West Slope, as described in Section 3.25 of the FEIS, would help address some of the potential effects from pine bark beetle-killed trees.

Comment: The linkage between the WGFP and the Northern Integrated Supply Project (NISP) on the East Slope should be disclosed and considered in cumulative effects discussion.

Response: Five of the WGFP Participants—Central Weld County Water District, Erie, Evans, Fort Lupton, and Lafayette—are also participants in NISP. These entities have identified future water needs that will require multiple sources of water. Section 1.7 of the FEIS includes additional information on the Participants' anticipated yield from NISP and the WGFP in relation to their overall future water needs.

Windy Gap water could potentially be rented by NISP participants as part of the initial fill of Glade Reservoir. NISP participants can either collectively or separately rent Windy Gap water from Windy Gap Participants. If the rented, Windy Gap water greater than the Participants' need for a year, could then be delivered into Glade Reservoir. The water would be delivered to NISP from Horsetooth Reservoir through the Windsor Extension into the Poudre Valley Canal. Should Windy Gap water be used for the initial fill of Glade Reservoir, it would have minimal cumulative impact since it merely changes the delivery location of WGFP Participants' water.

3100 Surface Water Hydrology and Water Rights

Comment: The hydrologic analysis should include drought years such as 2002.

Response: The modeling effort for the WGFP began in 2000. At that time, the decision was made to end the study period in 1996 because data required for the model (e.g., flow, diversion,

evaporation, and precipitation) were readily available through that year and the State's CDSS Model study period also ended in 1996. The need to extend the WGFP model study period was evaluated to determine whether a study period that includes recent hydrology (1997–2003), and in particular the 2002 drought year, would change conclusions regarding associated hydrologic changes and WGFP yields. Key conclusions of that analysis are as follows:

- The addition of a WGFP reservoir would not change Colorado River flows in a year like 2002. Windy Gap water rights did not come into priority in 2002, and the addition of a WGFP reservoir would not change that condition. Therefore, Windy Gap would not divert in a dry year like 2002 with or without a WGFP reservoir because Windy Gap diversions would be limited by the amount physically and legally available as opposed to available storage capacity.
- The WGFP firm yield would not change if the model period was extended through 2002. A comparison of model output for the 1950–1996 study period with the period from 1997–2003 shows other sequences of years within the 1950–1996 study period that are more critical than 2002 with respect to Windy Gap yield.

The current model study period from 1950–1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. Reclamation determined that the model study period is suitable for estimating hydrologic effects associated with the EIS alternatives for both direct effects and cumulative effects because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years.

Comment: Hydrologic modeling should consider a longer period of time (500 years) to recognize the variability in Colorado River flows.

Response: The model study period from 1950 through 1996 is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. The current model study period from 1950 through 1996 includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill Windy Gap firming storage. While tree ring-based reconstructions of Colorado River flows may reveal greater hydrologic variability than that reflected in the gaged record, particularly with respect to drought, the inclusion of more severe dry years in the study period would not change the evaluation of hydrologic impacts due to the WGFP. As shown by the evaluation of dry years included in the gaged record from 1950 through 1996, the addition of a WGFP reservoir would not change Colorado River flows in a dry year. Windy Gap water rights would not come into priority in a dry year and the addition of a WGFP reservoir would not change that condition. Windy Gap would not divert in a dry year with or without a WGFP reservoir because Windy Gap diversions would be limited by the amount of water legally available as opposed to available storage capacity.

Changes in snowpack and streamflow timing and magnitude associated with climate change may affect Windy Gap diversions and firming reservoir operations. If runoff decreases and shifts earlier in the year, Windy Gap diversions also would occur earlier and may decrease if the call on the Colorado River comes on sooner and is extended because Windy Gap water rights are relatively junior. If runoff increases and shifts earlier in the year, Windy Gap diversions could increase if the call comes on later and there is more water physically and legally available to divert. If runoff occurs earlier in the spring, the yield of the WGFP could decrease because of pipeline capacity and water rights decree constraints. To some degree, Granby Reservoir operations would buffer changes in the timing and magnitude of streamflows above Granby

Reservoir due to climate change. For example, if runoff increases above Granby Reservoir, more water would likely be stored and there would potentially be little change in outflow in years the reservoir does not spill. If runoff increases on average above the reservoir, Granby Reservoir outflow would likely increase in spill years and the spill could potentially occur sooner and the inverse would occur if runoff decreases on average. Flows in the Colorado River below Windy Gap would change if there are changes in the timing and magnitude of Windy Gap diversions, spills from Granby Reservoir, and inflows from Willow Creek and the Fraser River. If evaporation rates increase, then evaporative losses at firming project reservoirs would increase. Evaporative losses could also increase or decrease if Windy Gap diversions to storage change. This could result in increased Windy Gap diversions at times to replace those additional losses and/or reduce WGFP firm yields.

Climate change was not reflected in the WGFP hydrologic model due to varied predictions in the magnitude and direction of climatic changes, and the uncertainty in determining incremental changes in streamflow or reservoir levels associated with increasing or decreasing temperatures and precipitation.

Comment: The average peak flows through Byers Canyon was more than double what it is after 1986; therefore, using any of this data will yield statistics that are misleading and inaccurate and are probably being used intentionally to skew numbers in favor of more diversions. Only years with current levels of diversions should be used in the EIS.

Response: The comment suggests that only years with current levels of diversions should be used in the DEIS because USGS data shows that before 1986, the average peak flows through Byers Canyon were more than double what they were after 1986. The purpose of including years prior to 1986 in the analysis is to reflect the potential impacts of the WGFP under a variety of hydrologic conditions. The WGFP model starts with baseflows at each modeled location. Baseflows are defined as gaged flows plus adjustments for historical reservoir releases and filling, diversions, and gaged inflows such as wastewater treatment plant effluent discharges and irrigation ditch returns to the river. Therefore, baseflows are as full a depiction as possible of the unregulated flow or hydrologic conditions that would have occurred without development. To evaluate the hydrologic effects of each WGFP EIS alternative, current conditions or levels of diversions are imposed upon the baseflows that occurred throughout the study period. The model study period from 1950 through 1996 is suitable for estimating hydrologic effects associated with the EIS alternatives because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. Use of baseflow data prior to 1986 does not yield statistics that are misleading and inaccurate, rather it reflects the wide range of hydrologic conditions that can occur regardless of the level of diversions.

Comment: The DEIS only focused on monthly flow averages rather than looking at daily flows.

Response: Daily data were developed from monthly model output by disaggregating monthly values using historical gage records. Two sets of daily data were developed. Daily data were developed for the entire study period for the USGS gages on the Colorado River below Granby Reservoir, below Windy Gap, at Hot Sulphur Springs, and near Kremmling, and the gage on Willow Creek below Willow Creek Reservoir. In addition to the daily data developed for the entire study period at the locations listed above, average, wet, and dry monthly flows were disaggregated to daily values to develop average, wet, and dry daily hydrographs. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly summaries of flows, diversions, reservoir outflow, end-of-month reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with the alternatives. Daily data were used to generate flow duration curves and daily

hydrographs, and to determine the frequency and magnitude of daily flow changes. These types of hydrologic analyses were based on daily variations, and were used in resource assessments where the magnitude or value of the resources is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Section 3.5.2.2 of the FEIS was revised to include information related to the use of daily data for resource evaluations, including fisheries and water quality that are sensitive to daily flow variations.

Comment: Hydrologic impacts are underestimated. Hydrologic impacts should be based on comparisons with historical conditions.

Response: Effects on flows due to future WGFP diversions were based on a comparison with modeled existing conditions and the No Action alternative that reflect the existing Windy Gap Project diversions and that are indicative of the current administration of the river, demands, infrastructure, and operations. Hydrologic output associated with the action alternatives was not compared with historical hydrology because current Reclamation, Corps, and CEQ guidance implementing the National Environmental Policy Act dictate that the effects of the proposed action be compared to either the existing condition or the No Action alternative, not historical conditions. To develop an analysis that is inconsistent with current agency guidance would be procedurally incorrect.

Comment: Hydrologic impacts should be evaluated farther downstream than the gage below the confluence of the Blue River and Colorado River.

Response: The active model area extends downstream of the Dotsero gage. However, the area considered for the analysis of hydrologic effects extends downstream to the USGS gage below Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes would be less than 10 percent under direct effects. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream study area extent. Results of the resource evaluations indicate direct effects due to the WGFP would be negligible to minor along the Colorado River below the Kremmling gage, and would continue to diminish downstream with tributary inflows. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. However, impacts to boating and aquatic resources on the Colorado River were evaluated downstream of Kremmling.

Comment: It seems astonishing that the original Windy Gap Project was built with no firm yield. What assurance is there that the proposed project would have a firm yield.

Response: The original WGFP assumed that storage in Granby Reservoir would be available for Windy Gap water more frequently and that as Participant demand increased, additional storage would be developed. The proposed project assures that dedicated storage in a new reservoir would remain available for Windy Gap water and, therefore, a firm supply of water for Participant use can be drawn on.

Comment: The WGFP and prepositioning under the Preferred Alternative would reduce Granby Reservoir water levels substantially from existing conditions.

Response: To maintain higher water levels in Granby Reservoir under the Proposed Action, the Subdistrict would modify prepositioning operations as described in the FWMP (FEIS Appendix E). Under the originally proposed version of prepositioning Granby Reservoir storage content and water surface elevations would be lower than existing conditions, particularly during consecutive dry years due to the delivery of C-BT water to Chimney Hollow Reservoir. To

maintain greater storage in Granby Reservoir, the Subdistrict would reduce, and in some instances curtail, C-BT deliveries to Chimney Hollow Reservoir when water levels in Granby Reservoir are projected to fall below an elevation of 8,250 feet (about 340,000 AF of storage). If projections indicate Granby Reservoir would fill, C-BT water would be delivered to Chimney Hollow Reservoir to maintain that reservoir full to the extent possible. C-BT water in Chimney Hollow Reservoir would then be exchanged with Windy Gap water diverted to Granby Reservoir, as described under the originally proposed version of prepositioning. Details of this measure would be developed by the Subdistrict and incorporated into a proposed agreement between Reclamation and the Subdistrict with review by the Corps. The objective is to minimize the adverse effects of prepositioning on water levels in Granby Reservoir. This measure would minimize any potential negative effects on aquatic resources and recreation in Granby Reservoir that may be caused by reduced water levels from prepositioning.

Comment: The WGFP project will result in less water available for use on the West Slope.

Response: The WGFP would only divert water in accordance with their existing water rights, as administered by the Colorado State Engineer. The Subdistrict would bypass flows necessary to meet senior downstream rights. As part of the compensatory mitigation for the original Windy Gap Project, the Subdistrict agreed to subordinate its Windy Gap decrees to all present and future in-basin irrigation, and domestic and municipal uses (excluding industrial uses) on the Colorado and Fraser rivers and their tributaries above the Windy Gap Reservoir site.

Comment: The Northern Colorado Water Conservancy District has a contractual obligation to maintain a specific water flow below Windy Gap Reservoir along the entire river bed adjacent to downstream property holders.

Response: The Subdistrict will continue to honor all agreements with downstream property holders that are still in effect.

Comment: The WGFP water rights are conditional; this is a new water project requiring new water rights.

Response: The Windy Gap water rights were made absolute in Case No. 89CW298, which awarded absolute water rights to pump 600 cfs from the Windy Gap Pump Canal, and also confirmed the volumetric diversion limits as an integral part of the decree. WGFP water rights are under the administration of the Colorado State Engineer's Office.

3150 Ground Water

Comment: WGFP diversions could impact the water table along the Colorado River or below Granby Reservoir, resulting in impacts to aquifer recharge and domestic wells.

Response: The WGFP will only divert water in accordance with the existing water rights. Water level fluctuations associated with stream diversions would have negligible effects on alluvial ground water levels and well productivity. Changes in stream stage of typically less than 6 inches as a result of the WGFP are unlikely to be noticeable to a user pumping from the alluvium, assuming the average saturated thickness is adequate to produce water by pumping at any specific location. As the low topographic point in the basin, the Colorado River is mostly a gaining stream and alluvial water table fluctuations of greater than 6 inches are common due to natural seasonal climatic variations and runoff, ground water pumping, irrigation return flows, and stream diversions. Granby Reservoir spills would decrease with the WGFP, but minimum flow releases would continue. Other regional subsurface contributions from bedrock formations to the alluvial aquifer would be unaffected by the WGFP.

3160 Stream Morphology and Floodplains

Comment: WGFP Colorado River diversions will adversely impact channel morphology; larger flushing flows than the existing 450 cfs requirement are needed.

Response: Although the Colorado River flow has been quite variable, due in part to diversions and storage, only minor changes in river morphology have been detected below Granby Reservoir and below Windy Gap Reservoir (Ward and Eckhardt 1981; ERO and Boyle 2007). In addition, recent cross-sectional analyses completed for aquatic resources, 8 to 10 miles downstream of Windy Gap Reservoir, showed no evidence of recent changes to stream morphology or sediment deposition in the Colorado River near Parshall (Miller 2008). Sediment discharges to the Colorado River are derived from upstream sources, tributary inflows, overland flow, channel bed, and banks (Ward and Eckhardt 1981). The igneous and metamorphic rocks of the Colorado River headwaters are fairly resistant to weathering and, therefore, contribute little sediment to the river. A previous study showed that the Colorado River channel bed and banks are well armored (Ward and Eckhardt 1981). This study determined that the largest tributary source of sediment in the study area is Troublesome Creek; other tributaries are minor sources. The sediment supply was found to be low, and the transport capacity of the river greatly exceeded supply (Ward and Eckhardt 1981).

A sediment transport evaluation was completed for the Colorado River using streamflow and shear stress values at the Breeze station, a riffle site located downstream of the confluence of the Williams Fork. This analysis provides a generalized relationship between sediment mobilization and streamflows in the Colorado River. The results showed that fine sediments (sand, 2 mm or finer) would be mobilized at this riffle site at flows of less than 50 cfs. Fine gravel (8 mm) would require a flow of 200 cfs, medium gravel (16 mm) would require a flow of about 400 cfs, and coarse gravel (32 mm) would require a flow of about 850 cfs to be mobilized. The extensive data collection from Ward and Eckhardt 1981 study is still applicable. This study at four locations below Windy Gap to above the Blue River showed that fine sediments (sand, 2 mm or finer) would be mobilized at discharges ranging from 140 to 240 cfs (depending on location, with the highest flow at the lowest site above the Blue River). The flow duration curve for Hot Sulphur Springs shows minor changes in flows of 150 cfs or less and little change at Kremmling in flows of about 1,000 cfs or less. Additional discussion was added in Section 3.7.2.6 of the FEIS describing sediment transport. In addition, historic and recent aerial photos show minimal changes in stream morphology.

The Subdistrict developed a *Fish and Wildlife Mitigation Plan* (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The FWMP includes an increase in channel maintenance flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25).

3200 Surface Water Quality

Comment: The Three Lakes model is focused on eutrophication and does not consider the problems associated with the discharge of pollutants from pumping from Granby Reservoir. The analysis focuses on annual average rather than the seasonal pumping issues.

Response: The process of eutrophication manifests itself in the growth of algae and associated problems such as decreased clarity. The Three Lakes Model accounts for pumping and the transfer of pollutants from Granby Reservoir in order to estimate the impacts on algae growth.

Model results are reported as annual averages and as daily results in the Lake and Reservoir Water Quality Technical Report.

Comment: The Three Lakes Water Quality Modeling Report temperature analysis is only performed for Granby Reservoir and ignores Grand Lake. Some of the model input is from Kremmling, which is 40 miles away.

Response: There is no discernable difference in temperature between the alternatives and existing conditions for Granby Reservoir. Therefore, it is anticipated that there would be no negative impact on Grand Lake or any of the other reservoirs due to the alternatives.
For the temperature analysis conducted for Granby Reservoir, air temperature, relative humidity, and precipitation data are from a meteorological station between Shadow Mountain Reservoir and Granby Reservoir. Wind speed is not recorded at that station, and information from the closest location (Kremmling) was used to estimate conditions at Grand Lake. Fortunately, air temperature, the most influential meteorological factor, is measured in the Three Lakes area.

Comment: The EIS does not address how WGFP Colorado River diversions will adversely impact Colorado River water quality from non-point sources, wastewater effluent, salinity, selenium, and sedimentation.

Response: Operation of the WGFP, as described in the FEIS, does not introduce nonpoint or other sources of pollution into the Colorado River. No construction activities or earthwork would occur on the West Slope as part of the Preferred Alternative. Construction of Jasper East Reservoir or Rockwell Reservoir have the potential to introduce sediment or other nonpoint sources to Colorado River tributaries during construction. WGFP diversions will reduce Colorado River flow below Windy Gap Reservoir primarily during the high runoff season in May and June. A reduction in Colorado River flows would reduce the volume of water available to dilute discharges from nonpoint sources such as agriculture, and point sources such as municipal wastewater discharge. Water quality modeling described in the WGFP FEIS and associated technical reports indicates that there would be no downstream exceedance of any water quality standards for chemical constituents as a result of the WGFP. However, increased WGFP pumping into the Three Lakes system would increase nutrient and sediment loadings to Granby Reservoir, Shadow Mountain Reservoir, and Grand Lake.

The Subdistrict would develop a proposed nutrient reduction mitigation plan for Reclamation and Corps approval, as described in Section 3.8.4 of the FEIS.. The plan includes point source nutrient reductions from WWTP discharges in the Fraser River and nonpoint source nutrient reductions from agricultural land in the Willow Creek watershed. Other nutrient reduction measures would be implemented as necessary to meet the requirement to provide a documented nutrient reduction credit factor of 1:1 to satisfy Reclamation and Corps mitigation requirements. These measures would improve the quality of the Fraser River, Willow Creek, and the Colorado River year-round and also would benefit the Three Lakes, Horsetooth Reservoir, and Carter Lake by reducing nutrient loading from WGFP pumping.

Comment: The EIS does not address the low flows below Windy Gap in August and September and the algae blooms.

Response: Historically, low flows in the late summer and fall have occurred outside of the Windy Gap pumping season. The WGFP would allow potential increases in August diversions primarily in wet years. The WGFP would not divert water in September. To mitigate potential temperature increases in the Colorado River from WGFP diversions in the late summer, mitigation measures will be implemented as described in the response to the next comment and in Section 3.8.4 of the FEIS. Filamentous algae and the diatom Didymo are common in the

Colorado River both upstream and downstream of the Windy Gap diversion and a nuisance primarily in the Fraser River and the Colorado River downstream of the confluence with the Fraser River. The growth and production of algae and diatoms depends on a variety of complex factors including hydrologic conditions, pollutant loading (nutrient sources such as WWT discharge, runoff from agricultural lands, and other nonpoint sources), and biotic factors. There is a lack of understanding regarding the factors that influence Didymo, and it is very difficult to predict how the WGFP might impact its growth, which some studies attribute to reduced high flows or higher nutrients. The WGFP does not contribute to nutrient concentrations in the Colorado River, but proposed mitigation to reduce nutrient loading to the Three Lakes will benefit water quality in the Colorado River, as described in Section 3.8.4 of the FEIS.

Comment: Additional WGFP diversions from the Colorado River will increase stream temperature, which are already too high particularly in the late summer.

Response: Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic maximum weekly average temperature (MWAT) and acute daily maximum (DM) standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology.

In recognition of the state's responsibility for fish and wildlife resources found in and around state waters that are affected by water diversion, delivery, or storage facilities, the Colorado General Assembly enacted Colorado Revised Statute (CRS) 37-60-122.2. This statute states that "fish and wildlife resources that are affected by the construction, operation or maintenance of water diversion, delivery, or storage facilities should be mitigated to the extent, and in a manner, that is economically reasonable and maintains a balance between the development of the state's water resources and the protection of the state's fish and wildlife resources." The Subdistrict developed a *Fish and Wildlife Mitigation Plan* (FWMP) in accordance with the requirements of CRS 37-60-122.2 (FEIS Appendix E). The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.

Comment: Additional WGFP pumping into the Three Lakes will adversely impact water quality in Granby Reservoir, Shadow Mountain, and Grand Lake.

Response: The Water Quality section of the FEIS includes a discussion of the project impacts to water quality in each of the Three Lakes. Section 3.8.4 of the FEIS includes a discussion of the mitigation measures designed to reduce impacts to lake water quality by offsetting nutrient loading from additional WGFP pumping. These measures include upgrades to the Fraser WWTP, and implementation of best management practices and other erosion-control measures to reduce nonpoint agricultural sources of nutrient discharges in the Willow Creek drainage and elsewhere.

These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP compared to existing conditions, and would have the associated beneficial effects on lake clarity and reduced algae. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.

Comment: Are the applicable standards for Grand Lake water quality the Colorado Department of Public Health and Environment (CDPHE) standards or is the requirement to maintain Grand Lake as it was prior to the Colorado-Big Thompson Project per Senate Document 80?

Response: The CDPHE is responsible for establishing and enforcing water quality standards for all water bodies in the state. Additionally, Reclamation is responsible for operating the C-BT Project in accordance with the requirements of Senate Document 80.

Comment: The Lake and Reservoir Water Quality Technical Report indicates that only recent comprehensive water quality data (2000-2007) was available for use in the analysis. With these limitations, how can you evaluate changes in Grand Lake since the 1981 Windy Gap EIS?

Response: CEQ, Reclamation, and Corps guidance require agencies to use available information when preparing NEPA documents. Available water quality data for Grand Lake provides adequate information for quantifying existing water quality conditions and predicting future water quality. The WGFP EIS evaluates potential effects to water quality by comparing either existing conditions or expected conditions under the No Action alternative to what water quality is likely to be with implementation of any of the alternatives. The EIS does not directly evaluate specific changes in Grand Lake since 1981. Cumulative effects to water quality in Grand Lake from past, present, and reasonably foreseeable actions are evaluated as part of the cumulative effects evaluation in the FEIS.

Comment: Toxic algae blooms in Grand Lake are a concern. In the past they have caused public health officials to warn against any use of Grand Lake for recreational purposes.

Response: In 2007, a water advisory was posted for Grand Lake for 2 weeks by the Grand County Public Health Nursing Service. This was based on a microcystin measurement of 1.48 ug/l on August 6, 2007 analyzed using the ELISA method. Two follow-up tests using another method (HPLC) on the August 6 samples indicated values of 0.85 and 0.87 ug/l. The WHO alert level for chronic exposure via drinking water is 1 ug/l. The highest mycrocystin test value for 2004, 2005, 2006, 2008, and 2009 was 0.334 ug/l. Most of the results are below the detection limit. Mycrocystin levels continue to be monitored. The relationships between the abundance of toxin-producing algae and levels of microcystin are unclear and are the subject of research efforts.

Comment: Table 17 of the Lake and Reservoir Water Quality Technical Report indicates that for In-Lake values for 22 of the 37 parameters, there is either no data, not enough data, or data varies. The lack of data casts doubts on the findings.

Response: CEQ, Reclamation, and Corps guidance require agencies to use available information when preparing NEPA documents. Available water quality data were used to develop Table 17 which lists sixteen water quality parameters. Some are duplicated because there may be different requirements depending on the use classification. For example, the standard for dissolved cadmium for aquatic life is different from the dissolved cadmium standard for water supply. When the word ‘varies’ is listed in the “In-Lake Value” column, this means that the standard varies (usually as a function of hardness or temperature and pH), thus making it difficult to summarize the threshold from which to compare. For these instances, the standards assessments

were completed and the final conclusion is in the "Standard Met?" column. When "not enough data" is noted, that means data existed but the minimum number of data points required for a standards assessment was not met. The FEIS includes updated information on Colorado Department of Public Health and Environment 2011 water quality standards for the Colorado River and South Platte River basins.

Comment: The Lake and Reservoir Water Quality Technical Report indicates that low dissolved oxygen concentrations at the bottom are a concern because of the potential for release of orthophosphate, ammonia, iron, and manganese from the sediment under anoxic conditions. Why wasn't this information included in the EIS?

Response: This information has been added to the FEIS.

Comment: What was the level of clarity in Grand Lake in 1981 before Windy Gap, or 1947 prior to the C-BT Project?

Response: Available data indicate that clarity in Grand Lake is approximately the same as it was in the 1950's and 1960's, shortly after the initial delivery of C-BT Project water through Grand Lake. The WGFP EIS evaluates the potential effects to water quality from a change in the current baseline conditions to what water quality is likely to be with implementation of any of the alternatives. Although the EIS does not directly evaluate specific changes in Grand Lake since 1981 or evaluate the impacts due to the C-BT Project, available historical Secchi-disk depth readings are summarized below. Only years with multiple readings over the course of the year are included since there are seasonal effects. The values are in meters. Note that there is only one year (1953) after the C-BT Project came online and before construction of the Windy Gap Reservoir. There are no data points for 1981. There is only one data point (9.2 meters) for the period before the C-BT Project (September 6, 1941).

Year	Mean	Period	N	Min	Max	Data Source
1953	3.1	May-Oct	8	1.2	4.6	Pennak
1953	2.7	June-Oct	15	1.3	4.7	Colorado Public Health Department
1953	2.5	Jun-Sep	20	1.3	3.7	Reclamation
1975	3.4	Aug-Oct	4	2.4	4.3	Colorado Department of Health
1980/81	Unk.	Unk	Unk.	1.9	3.7	CSU, Patrick Nelson, M.S. Program
1996	2.8	Jun-Sep	12	1.6	4.6	Grand Lake Volunteers
1997	3.2	Jun-Sep	7	2.1	4.1	Grand Lake Volunteers
1998	2.7	Jun-Sep	5	1.7	3.5	Grand Lake Volunteers
1999	3.7	Jun-Aug	4	3.0	4.5	Grand Lake Volunteers
2000	3.2	Jun-Nov	6	2.3	5.7	Grand Lake Volunteers / USGS
2001	3.4	May-Nov	12	2.4	4.9	USGS
2002	3.6	May-Nov	9	2.1	5.3	USGS
2003	3.0	May-Nov	6	2.0	4.0	USGS
2004	3.8	May-Oct	5	2.9	5.4	USGS / USBR
2005	3.4	May-Oct	9	1.8	5.5	USGS / USBR

Comment: Consider the impacts of the C-BT Project on Grand Lake water quality.

Response: The impacts of the C-BT Project are beyond the scope of the WGFP EIS. Reclamation, the Northern Water Conservation District, and Grand County are currently evaluating changes in C-BT operation to improve Grand Lake water quality.

Comment: Hot Sulphur Springs and Kremmling were not properly analyzed in the EIS. Both of these towns are already having problems with water treatment and the WGFP would increase their problems.

Response: The Subdistrict would comply with state water law for all diversions. The Windy Gap Project currently curtails Colorado River diversions when flows reach 90 cfs below Windy Gap Reservoir. The Hot Sulphur Springs wastewater treatment plant (WWTP) effluent limits are based on upstream low flow conditions lower than 90 cfs. The Subdistrict would continue to curtail Colorado River diversions under the WGFP per the existing minimum flow requirements and, therefore, there would be no impact to Hot Sulphur Springs' water diversions or WWTP NPDES permit conditions. Kremmling's water intake and discharge are in the Muddy Creek drainage, and the WGFP would have no impact on Muddy Creek. To mitigate WGFP nutrient loadings to the Three Lakes, mitigation measures would be implemented that will offset the estimated additional nutrient loading to the Three Lakes system from the WGFP. These measures would provide year-round improvements to Colorado River water quality, which would benefit Hot Sulphur Springs. Proposed nutrient mitigation measures are described in Section 3.8.4 of the FEIS.

Comment: A reduction in Fraser River flows will hinder the ability to discharge treated wastewater. What will be the additional cost to the homeowners in Fraser for wastewater treatment.

Response: The WGFP will have no effect on Fraser River flows. Proposed nutrient mitigation measures for the Three Lakes will improve stream water quality in the lower Fraser River year-round.

3300 Aquatic Resources

Comment: The DEIS did not provide an analysis of the potential significant impacts on macroinvertebrates from seasonal reductions in Colorado River streamflow, and changes in water chemistry, algae, and temperature. Low flows and higher temperatures will exaggerate algae problems, destroying the ability to fish from July to September. Any increase in algae growth would likely shut down fishing completely and has the potential to completely destroy insect activity in the river. What are the specific forecasted impacts to key hatches like the Giant Orange Stonefly in the upper Colorado?

Response: Multiple approaches were used in determining impacts to aquatic resources including macroinvertebrates. Information was used from hydrologic modeling of flow changes, water quality modeling, aquatic habitat modeling, and sediment transport analysis. Water quality was modeled as a function of existing and predicted future conditions, including a cumulative effects analysis. Results indicate dissolved oxygen would have a slight decrease (approximately 0.1 mg/l), and concentrations would remain above the current water quality standard and are not expected to impact macroinvertebrates, including large stoneflies like *Pteronarcys*.

Filamentous algae and the diatom Didymo are common in the Colorado River. Algae provide forage for benthic invertebrates and will capture inorganic nutrients. The growth and production of algae depends on a variety of complex factors including hydrologic conditions, water quality (nutrient sources such as WWTP discharge, runoff from agricultural lands, and other nonpoint sources), and biotic factors. Didymo naturally occurs in northern or mountainous regions of Europe, Asia, and North America, but even within its native range, there have been reports of excessive growth in areas where previously it existed only at low concentrations. Unfortunately, there is a lack of basic biological and ecological knowledge for this organism. It thrives under a wide range of freshwater conditions – both hydrological and chemical, although it is commonly reported that Didymo prefers streams with low phosphorus and low mean discharge. Studies

have found no relation between water velocity and visual biovolume indices. A recent study reported a decrease in abundance in Boulder Creek, Colorado after a 3-day rain event, which suggested that larger flows could reduce its growth. However, the level of abundance was restored within a week and, therefore, the impact was not long lasting. Given the lack of understanding regarding the factors that influence Didymo, it is very difficult to predict how the WGFP might impact its growth. Mitigation measures designed to reduce nutrient loading to the Three Lakes will also reduce nutrient concentrations in the Fraser and Colorado rivers. No substantial changes in algae or Didymo populations are expected as a result of the WGFP or benthic invertebrate populations.

Water temperature modeling, including additional analysis since the release of the DEIS, indicate that the chronic maximum weekly average temperature (MWAT) standard could be exceeded during periods of WGFP pumping in mid to late summer. Mitigation for temperature impacts is included in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict. See Section 3.8.4.2 of the FEIS for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP..

A sediment transport analysis provided a generalized relationship between sediment mobilization and streamflows in the Colorado River, and indicated that flushing flows would remain more than adequate to move fine to medium-sized gravels and maintain habitat for spawning fish and creation of macroinvertebrate habitat. The FEIS (Section 3.5.4) includes mitigation measures to increase flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap.

Changes to aquatic habitat were modeled throughout most of the range of expected flows. The FEIS includes additional discussion of impacts to aquatic habitat in Section 3.9.3. The combined results of the water quality modeling, hydrology analysis, and sediment transport analysis all indicate that the ecological function of the river would be maintained at most times. The minimum streamflow requirements maintain the habitat needed for primary and secondary productivity. No impacts to those trophic levels are expected. Mitigation for water quality impacts will minimize and reduce potential impacts to aquatic habitat.

Comment: The DEIS does not identify the impact of diversions on aquatic life during drought conditions.

Response: Aquatic habitat modeling evaluated the impact to habitat under average, wet, and dry year conditions. There would be no impact to aquatic habitat in dry or drought years because there would be no change in Windy Gap diversions in dry years as a result of the WGFP. Cumulative impacts to aquatic habitat in dry years are discussed in the EIS, with additional analysis included in Section 3.9.3 of the FEIS.

Comment: The DEIS downplays consideration of cumulative effects to suggest there will be little effect on fishing or fisheries, despite information showing more frequent periods of lower flow and violation of the water quality standard.

Response: The DEIS and FEIS include an evaluation of the cumulative effects to aquatic life based on past, present, and reasonably foreseeable future actions. Mitigation measures are included in the FEIS to reduce the potential for aquatic resource impacts including stream temperatures that exceed state standards, as described in Section 3.8.4 of the FEIS.

Comment: What about the potential for the WGFP spreading zebra and Quagga mussels in West and East Slope reservoirs?

Response: In 2008, quagga and zebra mussel veligers were detected in the Three Lakes. Movement of C-BT Project water through the Adams Tunnel would have already moved quagga and zebra mussels to eastern slope reservoirs. However, a number of researchers (Hinks and Mackie 1997; Cohen and Weinstein 2001; Jones and Ricciardi 2005; Whittier et al. 2008) have noted that calcium is a key limiting factor, and there is uncertainty as to whether the Three Lakes will sustain reproducing adults due to very low calcium concentrations. It may be possible for veligers to survive being transported from the Three Lakes system through the Adams Tunnel and the C-BT delivery system to Horsetooth Reservoir. If this were the case, it may be very difficult for mussel populations to establish in Horsetooth Reservoir, again due to very low calcium concentrations (~9 mg/l). In addition, veliger mortality is likely high between the Three Lakes system and the Horsetooth Reservoir. These conditions exist with and without the WGFP, and it is very unlikely that the WGFP will alter the risk of infestation. A discussion of zebra and quagga mussels has been added to Section 3.8.3 of the FEIS.

Comment: Windy Gap Reservoir's contribution to whirling disease among rainbow trout should be considered in the mitigation of the WGFP. The consequence of reduced flows, lower flushing flows for sediment removal, and warmer temperatures on whirling disease should be considered.

Response: Whirling disease is widespread across Colorado and has resulted in the loss or reduction of rainbow trout populations in many of the state's rivers. Whirling disease is still present in the Colorado River, but there appears to be a shift in the species of tubiflex worms present in the reservoir according to the Colorado Division of Wildlife (Jon Ewert). The current species are not the carriers of whirling disease in the same number as previously sampled in Windy Gap Reservoir. CDPW also is researching habitat modification as a means to curtail whirling disease. Thompson (2005, Whirling Disease/Habitat Interactions, Federal Aid Project F-427-R2, Federal Aid in Fish and Wildlife Restoration Job Progress Report, Colorado Division of Wildlife, Fish Research Section, Fort Collins, Colorado, May 2005) reports the percentage of myxospore in brown trout for several rivers in Colorado. Thompson reported that the percentage of prevalence of myxospores in brown trout in the Fryingpan River and Spring Creek in the Taylor River drainage were as high or higher than downstream from Windy Gap Reservoir. The objective of the study was to determine the response of whirling disease presence to habitat modification. Thompson could not conclude that habitat modification resulted in a marked reduction in the prevalence of whirling disease myxospores. Streamflow volumes would remain adequate for sediment transport; therefore, no sediment deposition or aggradation is predicted for the Colorado River. Whirling disease flourishes at a wide range of temperatures from 40°F to 68°F, which is the current temperature range in the Colorado River in nonwinter months. This temperature range would not change substantially with the WGFP, and any temperature changes as a result of the WGFP would not contribute to expansion of whirling disease. Overall, the WGFP would not increase the incidence or conditions that promote whirling disease.

3400 Vegetation

Comment: Reducing flows in the Colorado River will allow invasive species like tamarisk to overwhelm the river.

Response: The potential for expansion of invasive species was discussed in the DEIS. Although tamarisk (on the Colorado Noxious Weed List B) was not discussed specifically, the potential for noxious weeds, in general, to invade the proposed reservoirs and other impacted areas is possible. Tamarisk establishes in a wide variety of environmental conditions and often outcompetes native species. Tamarisk is uncommon in the Upper Colorado River basin according to the Colorado

Department of Agriculture Noxious Weed Management Program, and is more common in the lower Colorado River basin. The WGFP would have minimal impacts on streamflow in the lower Colorado River where tamarisk is more prevalent. To help prevent the spread of tamarisk and other noxious weeds from the WGFP, a noxious weed control plan would be developed and implemented, as described in Section 3.10.4 of the FEIS.

3500 Wildlife

Comment: Chimney Hollow Reservoir will have too much impact on existing animal and raptor populations.

Response: Chimney Hollow Reservoir will result in the loss of about 810 acres of elk and mule deer winter range and general habitat for other terrestrial species. The loss of winter range represents about 0.2 percent of the available winter range in the CDPW Game Management Unit. Chimney Hollow Reservoir construction will inundate raptor and other bird habitat. The loss of habitat would displace species that have historically nested or foraged in the Chimney Hollow area. There would be no effect to golden eagles that occasionally nest on the cliffs to the east of Chimney Hollow Reservoir. The new reservoir would provide foraging habitat for bald eagles and other waterfowl. Proposed mitigation may include habitat improvement and management measures to enhance wildlife at Chimney Hollow. In accordance with the requirements of CRS § 37-60-122.2, the Subdistrict prepared a FWMP (FEIS Appendix E) in cooperation with the CDPW to develop specific mitigation measures for the identified impacts of the Proposed Action. The FWMP addresses wildlife habitat mitigation at the Chimney Hollow Reservoir site. The Subdistrict would develop a plan to replace the values provided by habitat lost or altered by construction of Chimney Hollow Reservoir. Mitigation of impacts to wildlife resources would involve a combination of mitigation strategies and tools including restoration of temporary disturbances, habitat enhancement, use of seasonal restrictions and buffer zones for raptors, and a migratory bird avoidance plan. In addition, the Subdistrict, Larimer County Parks and Open Land, and the CDPW will work cooperatively to develop a wildlife management plan for Chimney Hollow.

3550 Threatened and Endangered Species

Comment: Why will there be no impact on Colorado River endangered fish species?

Response: Section 3.13.2.3 of the FEIS was revised to explain the adverse effects to Colorado River endangered fish from WGFP depletions to the Colorado River, and the Municipal Subdistrict's participation in the Recovery Agreement and payment of the depletion fee. The USFWS Biological Opinion for the WGFP issued February 12, 2010 concluded that the project meets the criteria of the Recovery Implementation Program Recovery Action Plan to offset depletion impacts, and the project is not likely to jeopardize the continued existence of Colorado River endangered fish and is not likely to destroy or adversely modify designated critical habitat.

3600 Land Use and Land Ownership

Comment: The WGFP will impact property values at Ouray Ranch located below Granby Reservoir.

Response: Granby Reservoir spills increased when the Windy Gap Project was constructed because additional water was stored in Granby Reservoir and the potential for spills increased in wet years. Under the WGFP, Windy Gap water would be stored in new reservoir(s) and thus the potential for spills to the Colorado River in wet years would decrease. Granby Reservoir minimum flow releases would not change and as described in the FEIS. The potential for impacting property values from a decrease in Granby Reservoir spills in wet years would be minimal.

Comment: What about the impact to irrigation diversions at Ouray Ranch below Granby Reservoir?

Response: Granby Reservoir is owned by Reclamation and operated by the Northern Colorado Water Conservation District as a component of the C-BT Project. The WGFP has no direct control on releases from Granby Reservoir. Windy Gap water pumped from Windy Gap Reservoir to Granby Reservoir would spill less frequently in wet years under the WGFP. Granby Reservoir minimum flow releases would not change and operations would continue in accordance with state water law. WGFP operations would not impact irrigation diversions below Granby Reservoir. All WGFP diversions occur at Windy Gap Reservoir and are subject to any senior water rights that have a higher priority.

Comment: What about the impact to downstream ranchers and farmers that are already having trouble getting water out of the Colorado River because of low flows? How will their water rights be protected? Irrigators in the Kremmling area believe that Reclamation and the NCWCD should be responsible for maintenance and construction of pump sites on an ongoing basis. The pumps installed in the 1980s are failing to be effective with less water in the Colorado River and channel deepening. Irrigators feel the need for just compensation or irrigation structures that can pump their decreed rights in an effective and efficient manner as to protect the custom and culture they have enjoyed for generations.

Response: The Subdistrict would comply with state water law for all diversions. Windy Gap cannot divert when downstream senior water rights are calling for water. In addition, the WGFP would comply with Colorado River bypass flow requirements established by the Agreement Concerning the Windy Gap Project and the Azure Reservoir and Power Project (Azure Agreement) completed April 30, 1980 as part of the original Windy Gap Project. This agreement requires the Windy Gap Project to curtail diversions if streamflow drops below 90 cfs below Windy Gap Reservoir; 135 cfs below the Williams Fork; or 150 cfs below Troublesome Creek. The Windy Gap Project cannot divert if the agreed minimum flows are not met, even if Windy Gap water rights are in priority. Colorado River flows may fall below the minimum streamflow volumes when the WGFP is not pumping, particularly in late summer. The Subdistrict has no control over Colorado River flow when the Windy Gap Project is not pumping.

The EIS points out that water rights for existing agriculture, municipal, and other uses would be protected under Colorado water law, and any municipal or agricultural diversions downstream from Windy Gap Reservoir, per Colorado water law (C.R.S. § 37-92-102(2)(b)), would remain responsible for developing a reasonable means of diversion for their water. Per the Azure Agreement, the Subdistrict funded $500,000 in improvements for ranches downstream from Windy Gap Reservoir to maintain their diversion structures on the Colorado River. The original Windy Gap Project included diversions greater than those in the WGFP. The 1980 Azure Agreement was developed to mitigate and address all objections to the Windy Gap Project. The Azure Agreement was signed by 30 ranchers. The C-BT Project will continue to be operated in accordance with Stipulation j. of Senate Document 80 and downstream irrigators in the Kremmling area will continue to be treated as if their water supply from the Colorado River has a date of priority earlier than the rights of the C-BT Project. Sufficient water will be provided from Granby Reservoir to meet these rights. However, as stated above, it is the responsibility of the irrigator to assure that their irrigation diversion works are capable of capturing their water rights.

Comment: Traffic studies should be conducted and Highway 56 should be widened.

Response: If Chimney Hollow Reservoir is constructed, the Subdistrict and construction contractors would comply with applicable Larimer County Road and Bridge Department regulations, and work with the county to minimize impacts to roads and maintain traffic safety.

Comment: How will the proposed project impact growth and development along the Front Range?

Response: As discussed in Section 2.8.3, Actions Not Considered Reasonably Foreseeable, growth-related impacts were not evaluated in the FEIS because population growth in the communities served by the WGFP is expected to occur regardless of the decision on whether to implement the project.

3700 Recreation

Comment: Water based recreation impacts are based on changes in streamflow from 1950-1996, but does not consider 1997-2007 streamflow, when streamflow was reduced by man made factors, including the Windy Gap Project and drought. If more recent information was used, the incidence of inadequate streamflow for boating would surely increase.

Response: The model period used in the DEIS provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts and water-based recreation impacts. The 1997 to 2003 period, which included the 2002 drought year, was evaluated to determine whether inclusion of an extreme drought year would affect conclusions regarding associated hydrologic changes. Results of that assessment indicated that in drought years like 2002, the WGFP would not divert water because the water rights would not be in priority, and the 1950–1996 model period contains sequences of years similar to those that occurred from 1997 to 2003. Extension of the modeling period would not substantially change the range of hydrologic conditions or the predicted impacts to flows available for boating as a result of the WGFP.

Comment: The recreation impacts to rafters and kayakers is incorrectly based on the assumption that the optimal flows in the Colorado River are between 1,000 and 2,200 cfs. There is no high end number for optimal flows and it is rare for the Colorado River below Kremmling to ever get too high.

Response: The development of "preferred flow" and "minimum preferred flow" standards for boating on the Colorado River was based on previous studies, published guidebooks, and personal communications with raft guides and BLM staff. The original use of 2,200 cfs as a high-end indicator (not a cap) for preferred boating flows was consistent with guidebook rating of Class V+ rapids through Big Gore Canyon when flows exceeded that level, and the assumption that few boaters would safely float the canyon at those levels. Incidentally, the Grand County Stream Management Plan (SMP) identifies "optimum" kayaking flows to be below 1,400 cfs. None of the alternatives affect the average frequency of high-end streamflows above 2,000 cfs. After review of the Grand County SMP and additional conversations with BLM staff, the preferred flow ranges for boating were changed and simplified to use a preferred flow of 850 to 1,250 cfs in Gore Canyon and 1,100 to 2,200 cfs at Pumphouse. The Recreation section of the FEIS reflects these changes. Rafting and kayaking likely occurs both below and above these flow ranges, but it does reflect the range of preferred flows when most boating activities occur. Nothing in any alternative would preclude advanced boaters from accessing the river during high-end streamflow periods.

Comment: The EIS needs to evaluate impacts on recreation when boat ramps at Granby Reservoir would not be accessible due to lower water levels.

Response: Access to the Arapaho Bay boat ramp would be affected in May of average years under the Proposed Alternative, as discussed in the DEIS. The Arapaho Bay ramp would be accessible, along with the other boat ramps, through the duration of the summer recreation season. It is reasonable to assume that the loss of one boat ramp early in the 5-month boating season would not substantially affect recreation use or experiences. To address the impacts

associated with lower water levels in Granby Reservoir, prepositioning under the Proposed Alternative was modified in the FEIS to maintain higher water levels in Granby Reservoir, particularly during dry years. As discussed in Section 3.19.4 of the FEIS, modified prepositioning would maintain higher water levels when Granby Reservoir is forecasted to fall below an elevation of 8,250 feet. However, drought conditions and delivery of C-BT water could still result in water levels below the 8,250 elevation of the Arapaho Bay boat ramp in some years. The Recreation section in the FEIS has been revised to acknowledge potential impacts on private marinas and boat docks at Granby Reservoir when water levels are lower.

Comment: A decrease in water clarity in the Three Lakes system will adversely impact the aesthetic qualities, visitor experience, and local economy.

Response: Proposed nutrient mitigation measures, are estimated to offset the additional nutrients that the WGFP would deliver to the Three Lakes. Reducing nutrient loading into the Three Lakes system would reduce the potential for increased algal growth or changes in clarity as a result of the WGFP. Thus, with nutrient mitigation measures, the WGFP is unlikely to adversely impact the existing aesthetics, recreation, or other socioeconomic effects related to lake clarity.

Comment: The EIS should evaluate the impact to the Colorado River's potential suitability for designation as a wild and scenic river.

Response: Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate process being conducted by the Bureau of Land Management (BLM). BLM will complete the suitability evaluation as part of its RMP revision process with recommendations given in a Draft EIS that was released on September 16, 2011. BLM's policy is to manage and protect eligible river segments so as not to adversely constrain the suitability assessment or any subsequent recommendations to Congress. River or stream segments must be found eligible and suitable to be considered for designation in the National Wild and Scenic Rivers System and only Congress or the Secretary of the Interior can designate segments. Recreational values are among the outstanding remarkable values identified for each river segment. The EIS discusses and acknowledges this ongoing process in the Recreation section. While the effects to river recreation described in the EIS could relate to the recreational values along the Colorado River, it is BLM's responsibility to determine the suitability of each reach being considered for Wild and Scenic designation.

Comment: The recreation analysis excludes baseline information for any visitors, but commercial boating and commercial fishing on only one reach of the Colorado River, excluding all other recreation activities in all other locations.

Response: All existing available information on water-based visitor use was used. No visitor data for private boating and fishing on the Colorado River is available. No statistical information is kept on visitor use at the Three Lakes.

Comment: How much would flows in the Big Thompson River increase and how would it affect the number of kayak days?

Response: Under the Preferred Alternative, Big Thompson River flows below Lake Estes would increase primarily from May to July by about 14 to 18 cfs on average. Suitable kayaking flows occur at more than 400 cfs, which typically occurs mostly in June under existing conditions. The small increase in summer flows could slightly increase the number of days when flows exceed 400 cfs.

Comment: What would be the effect to boating flows in North St. Vrain Creek below Ralph Price Reservoir and in St. Vrain Creek through Lyons?

Response: The flows in North St. Vrain Creek and St. Vrain Creek above Lyons would only be affected under the No Action Alternative. Predicted changes in flow for these streams are included in Table 3-15 of the FEIS. Potential impacts to boating are discussed in Section 3.19.2.7 of the FEIS.

Comment: Higher water levels in the Big Thompson River will adversely affect trout fishing.

Response: The small increases in summer flows (<18cfs on average) would slightly increase fish habitat, but is unlikely to measurably affect fish populations or accessibility for fishing.

3770 Visual Resources

Comment: The visual quality analysis excludes consideration of Three Lakes Reservoirs, Willow Creek Reservoir, and the Colorado River as scenic assets that attract and extend the stay of visitors.

Response: The EIS includes a discussion of visual effects for the Three Lakes and Colorado River in Section 3.21.2.5. Proposed mitigation measures (FEIS Section3.25) for the Preferred Alternative includes modifying prepositioning to maintain higher water levels in Granby Reservoir and nutrient reduction measures to minimize impacts to algae growth and clarity in the Three Lakes. Willow Creek Reservoir would not be impacted by the WGFP.

3800 Socioeconomics

Comment: Lower Granby water levels may impact lakeside lodges and marinas.

Response: No information was available to quantify potential economic effects associated with varying Granby Reservoir water levels. The Preferred Alternative was revised in the FEIS to include a modification to prepositioning that would reduce the magnitude of drawdowns in Granby Reservoir as a result of the WGFP. Hydrologic modeling indicates that prepositioning of C-BT water in Chimney Hollow would be curtailed when Granby Reservoir storage reaches about 340,000 AF (8,250 feet in elevation). Drought conditions and delivery of C-BT water could still result in water levels below 8,250 feet in elevation in some years. Proposed modification to prepositioning would reduce the potential for water level fluctuations from the WGFP that could affect lakeside businesses. Additional discussion of the effects of modified prepositioning are in Section 3.5.4 of the FEIS.

Comment: The economic impacts to the Western Slope were not fully analyzed in the DEIS. The DEIS excludes economic impacts of recreational activities and tourists on lodging, restaurant sales, recreation equipment rental providers, guides, outfitters, marinas, rafting businesses, and other retailers. Those measured impacts are underestimated because of an inaccurate measure of existing conditions, No Action, inappropriate modeling techniques, false assumptions, outdated data, lack of quantification, and omission of critical data.

Response: Socioeconomic and other effects were quantified where data on use and impacts are available. Effects of the Preferred Alternative on the recreation experience and aesthetics is qualitatively described wherever possible, recognizing that these effects vary widely by individual user. As described in the Aquatic Resources section, projected effects to fish habitat are not anticipated to translate to a loss in fishing opportunities or fishing success. Reductions in preferred boating flows and boating days, and the associated economic effects are described and quantified in the Recreation and Socioeconomics sections. The analysis focuses primarily on commercial boating, for which baseline use data exist. Proposed mitigation measures, as

summarized in Section 3.25 of the FEIS, such as nutrient reduction, modified prepositioning, and measures in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict and adopted by the CDPW and Colorado Water Conservation Board, would all contribute to reducing potential socioeconomic effects.

The best available information was used in analyzing socioeconomic effects. With respect to comments regarding existing conditions and hydrologic modeling, please refer to the response to comments in section 3100 on Surface Hydrology and Water Rights above. For issues regarding the No Action Alternative, please refer to section 2000 on Alternatives above.

Comment: The DEIS disregards impacts on property values from diminished aesthetic and recreational assets in Grand County including the Three Lakes and Colorado River.

Response: Property values around Granby Reservoir are not likely to be adversely impacted by changes in water levels, clarity, or water quality under any of the alternatives because the incremental change in these parameters is small relative to the current wide fluctuations. However, proposed modifications in prepositioning that maintains higher Granby Reservoir water levels, and nutrient mitigation that reduces the potential for lower clarity in the Three Lakes system would reduce the potential for any measurable impacts to real estate values near the Three Lakes as a result of decreased clarity resulting from the WGFP.

Potential socioeconomic impacts to boating from changes in flow were quantified, but most boating occurs adjacent to public lands and there would be no impact to private property. As described in the Aquatic Resources section, projected effects to fish habitat are not anticipated to translate to a loss in fishing opportunities or fishing success and, therefore, impacts to property values are unlikely.

Comment: The DEIS failed to consider the broad-based socioeconomic effects of reduced recreation and the ripple effects through the regional economy. The DEIS excludes consideration of many key aspects of the recreation economy by limiting consideration to active recreation where there is public access.

Response: The focus of the socioeconomics analysis is on the water-based recreation activities of fishing and boating because those activities are where the majority of effects are likely to occur. The indirect or ripple effects on the regional economy are included in that analysis. See also response to other socioeconomic comments in this section.

3900 Comments on Other Resources or Issues

Comment: The EIS should consider the Grand County Stream Management Plan.

Response: The Grand County Stream Management Plan (SMP) was reviewed during preparation of the EIS. Reclamation's understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. However, mitigation measures included in the FEIS, such as reductions in nutrient loadings to the Colorado River and Three Lakes and development of a *Fish and Wildlife Mitigation Plan* would help meet some of the goals of the SMP. Additional discussion of the Grand County SMP was added to Section 3.9.1.4 of the FEIS.

4000 Mitigation

Comment: Mitigation measures in the DEIS are not detailed enough to address all of the impacts.

Response: Additional mitigation measures were defined and developed to reduce or offset the potential impacts from implementation of the Preferred Alternative. Mitigation measures and the effectiveness of those measures are described for each resource in Chapter 3—Environmental Consequences. An updated summary of mitigation measures also is included in Section 3.25 of the FEIS.

Comment: Mitigation measures should be commitments not suggestions.

Response: All of the final mitigation measures included in the FEIS and the Record of Decision will be environmental commitments by the Subdistrict and subject to review and monitoring by Reclamation.

Comment: What mitigation is proposed for the loss of winter range for big game at Chimney Hollow Reservoir?

Response: Mitigation for the loss of big game winter range at Chimney Hollow Reservoir is addressed in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict in cooperation with the CDPW in accordance with the requirements of CRS 37-60-122.2. A variety of vegetation/habitat enhancement and management activities are being considered to address the impact to habitat for big game and other species around Chimney Hollow Reservoir. The Subdistrict, Larimer County Parks and Open Land, and the CDPW will work together on management measures related to seasonal habitat closures, hunting, and other management tools.

Comment: What is the mitigation for loss of fish?

Response: As mentioned in the response to the previous comment, the Subdistrict developed a *Fish and Wildlife Mitigation Plan* (FEIS Appendix E) to address impacts to aquatic resources. The Colorado Wildlife Commission adopted the *Fish and Wildlife Mitigation Plan* on June 9, 2011 and the Colorado Water Conservation Board (CWCB) adopted it on July 13, 2011. The FWMP is a component of the mitigation and environmental commitments described in the FEIS (Section 3.25). Reclamation has accepted this plan as the mitigation plan for fish resources that are affected by implementation of the WGFP.

Comment: Mitigation should include increasing Colorado River minimum streamflow.

Response: Existing minimum streamflow requirements would not change. The *Fish and Wildlife Mitigation Plan* developed by the Subdistrict in accordance with the requirements of CRS 37-60-122.2 addresses mitigation for effects to aquatic resources affected by the WGFP. Proposed nutrient reduction measures would improve the quality of streamflow in the Colorado River. In addition, the *Fish and Wildlife Mitigation Plan* and FEIS include mitigation measures to increase Colorado River flushing flows. Flushing flows from the original Windy Gap Project (1980 MOU) would be modified to increase from 450 cfs to 600 cfs. In any year when flows below Windy Gap have not exceeded 600 cfs for at least 50 consecutive hours in the previous two years, and total Subdistrict water supplies in Chimney Hollow and Granby Reservoirs exceed 60,000 AF on April 1, the Subdistrict would cease all Windy Gap pumping for at least 50 consecutive hours to enhance peak flows below Windy Gap.

Comment: Set up scheduled recreational releases of water to mitigate impacts to the Colorado River boating beyond those for the Gore Race in August. This could include releases anytime streamflow in the Colorado River drops below 1,000 cfs or weekend releases.

Response: Overall, impacts to boating on the Colorado River from the WGFP at the most popular reaches in Gore Canyon and Pumphouse would be relatively minor. The number of days when flows fall within the preferred range for rafting and kayaking would decrease, but boating is still likely to continue when flows are outside of the preferred range. The majority of WGFP diversions occur in the spring and early summer when streamflow is high and there is ample water for recreational boating. WGFP diversions in the summer typically are low (average <100 cfs in July and <20 cfs in August). The anticipated impacts to boating in Gore Canyon and Pumphouse related to the WGFP are expected to be minor, thus, no specific change in WGFP diversions for boating are proposed other than for the Gore Race. The evaluation of impacts to boating in the Colorado River was revised in the Recreation section of the FEIS to simplify and clarify potential impacts.

Comment: Beyond participation in the ongoing Nutrient Studies of the Three Lakes and C-BT system, the Subdistrict should be required to follow any recommendations that come out of these studies.

Response: The purpose of the WGFP EIS is to disclose the effects of the WGFP and identify appropriate mitigation measures to avoid or minimize adverse effect. The ongoing Nutrient Studies of the Three Lakes system are primarily related to operation of the C-BT Project as it affects clarity in the Three Lakes system and Grand Lake. Nutrient mitigation measure for the WGFP will minimize and avoid increasing nutrients in the Three Lakes system s a result of the WGFP. The Northern Colorado Water Conservancy District (NCWCD) is committed to continued participation with Reclamation, Grand County, and other stakeholders in the evaluation of measures to improve water quality in the Three Lakes system. The NCWCD and Subdistrict are committed to working through the process and would contribute as appropriate to study recommendations.

Comment: The FEIS should include an evaluation of modified prepositioning.

Response: Section 3.5.4 includes a discussion of how modified prepositioning will maintain higher water levels in Granby Reservoir.

Comment: WGFP diversions should be coordinated with other water users to minimize impacts to Colorado River stream temperature. River modifications can also reduce impacts from low flows.

Response: The majority of WGFP diversions occur in the spring and early summer when flows are high and stream temperatures are low. The WGFP would allow diversions to occur later in the summer, primarily in wet years when stream temperatures are higher. Mitigation for temperature impacts is included in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation for the Colorado River. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not. Denver Water's *Fish and Wildlife Mitigation Plan* for the Moffat Collection System Project (Moffat Project) includes temperature mitigation measures that would contribute toward reducing stream temperatures in the Colorado River.

In addition to the *Fish and Wildlife Mitigation Plans* developed by the Subdistrict as a component of mitigation for the WGFP and by Denver Water for the proposed Moffat Collection System Project pursuant to regulations implementing CRS 37-60-122.2(2), both the Subdistrict and Denver Water cooperatively developed separate *Fish and Wildlife Enhancement Plans* to further improve existing fish and wildlife resources. These enhancement plans were endorsed by the Colorado Wildlife Commission on June 9, 2011 and subsequently by the CWCB on July 13, 2011. The enhancement plans are intended to improve fish and wildlife resources over and above the levels existing without the WGFP and Moffat Project.

A separate Environmental Assessment (*Colorado Water Users' Commitment to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River*) evaluating releasing 5,412 AF from Granby Reservoir for Colorado River endangered species was released by Reclamation in September 2011. As proposed, the releases for endangered fish in the late summer/fall flow would improve flows and temperature during the time of the year when Colorado River flows are typically low. The "10825 Project" was added to the reasonably foreseeable actions in the WGFP FEIS and was used in the cumulative effects evaluation on stream temperature in Section 3.8.3.

Comment: Mitigation is needed to address algae problems in the Three Lakes.

Response: Section 3.8.4 of the FEIS includes a discussion of the nutrient mitigation measures designed to offset nutrient loading to the Three Lakes from additional WGFP pumping. These measures would offset the total nitrogen and total phosphorus loadings to the Three Lakes projected from the WGFP, compared to existing conditions. These measures would not only benefit the Three Lakes and deliveries to the East Slope during pumping, but would provide a year-round benefit to water quality in the lower Fraser River, Willow Creek, and the Colorado River.

Comment: Project proponents continue to ban the public from most recreation use of Windy Gap and stretches of the Colorado River upstream and downstream of the project. Why not allow fishing and hiking?

Response: Windy Gap Reservoir was established as a Watchable Wildlife Area when the project was constructed, at the request of the CDPW. There are also safety concerns with opening up the reservoir to public access because of the terrain, project facilities, and operations. The Subdistrict does not own or control stretches of the Colorado River above and below Windy Gap Reservoir.

Comment: Mitigation should include mandatory water conservation for water providers.

Response: To assure that Windy Gap water diverted to the eastern slope is used efficiently, participants will be required to acquire and maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365) as amended. This requirement will also be extended to any participant that acquires shares in the WGFP from the existing participants. Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other municipal water providers and water districts must acquire a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict WGFP Participants for use of C-BT facilities.

Comment: Include mitigation that requires the Subdistrict to add a representative to the Middle Park Water Conservancy District (MPWCD) board of directors.

Response: The MPWCD is a participant in the proposed WGFP. The suggested mitigation measure does not mitigate any project-related impacts.

Comment: Combine WGFP mitigation with Moffat Collection System mitigation to offset cumulative effects of both projects.

Response: The Subdistrict and Denver Water have been working together, along with Grand County and other West Slope entities, to develop proposed mitigation measures for each of the projects. As previously described the Subdistrict and Denver Water have each developed *Fish and Wildlife Mitigation Plans* for the WGFP and Moffat Project that have been adopted by the Colorado Wildlife Commission and Colorado Water Conservation Board.

In addition, the Subdistrict and Denver Water have prepared *Fish and Wildlife Enhancement Plans* to improve fish and wildlife resources over and above the levels existing without the WGFP and Moffat Project and the Colorado Wildlife Commission and Colorado Water Conservation Board have each endorsed these plans. Also, as part of negotiations between West Slope parties and Denver Water, Grand County and Denver Water have reached a proposed agreement that addresses some of the issues related to Denver Water's existing operations in Grand County (Denver Water 2011c). In the *Proposed Colorado River Cooperative Agreement*, Denver Water has committed to the Learning By Doing Cooperative Effort and additional resource commitments to provide environmental enhancements to benefit the aquatic environment in the Fraser, Williams Fork, and upper Colorado rivers. These commitments are contingent upon the issuance and acceptance by Denver Water of the permits necessary for construction of the Moffat Project. Resource commitments pertinent to the upper Colorado River basin with overlapping benefits in the WGFP project area that are not part of the previously described Moffat Project *Fish and Wildlife Enhancement Plan.*

The mitigation plans associated with the WGFP and the Moffat Project would reduce cumulative impact from these projects.

5000 Comments on EIS Process

Comment: The WGFP and Moffat Collection System Project should be combined in one EIS.

Response: The WGFP and Denver Water's Moffat Collection System Project are independent of one another, can proceed independent of each other, and do not need to be evaluated in a single EIS. A significant effort was made by the U.S. Army Corps of Engineers and Bureau of Reclamation to coordinate the hydrology modeling efforts for the Windy Gap Firming Project (WGFP) and Moffat Project EISs. Prior to initiating the modeling of EIS alternatives and cumulative effects for the Moffat Project and WGFP, the lead federal agencies for the EISs compared the hydrologic modeling approaches and tools. This process included reviews of Windy Gap diversions, Granby Reservoir, and Adams Tunnel flows simulated in PACSM, and Moffat Project and Roberts Tunnel flows simulated in the WGFP models. This process also included a detailed comparison of flows in the vicinity of the projects' diversions and is presented in the technical memorandum, *Comparison of Fraser River flows simulated in the WGFP CDSS model with those simulated in PACSM (Boyle 2005).* Where possible, model data were compared on the two projects to assure that the WGFP and Moffat Project were reflected in a similar manner in each model. The cumulative effects analysis for the WGFP considered future diversions under the Moffat Collection System Project. Per the direction of the lead federal agencies for each EIS, hydrologic data were shared so that the model simulations of the WGFP and Moffat Project were consistent and in appropriate detail for each EIS. The cumulative effects analyses for the WGFP and Moffat Project also considered the same reasonably foreseeable water-based actions. As noted in the response to the previous comment the Subdistrict and Denver Water are coordinating on mitigation measures for the two projects.

Comment: A Supplemental EIS should be prepared.

Response: A Supplemental EIS is only needed if there are substantial changes in the proposed action or if significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts are identified. There are no substantial changes in the proposed action. Operation of the Preferred Alternative was modified slightly in the FEIS to mitigate potential impacts identified in the DEIS. These measures include modification to prepositioning to maintain higher water levels in Granby Reservoir and other mitigation measures to minimize and avoid adverse effects to other resources affected by the WGFP. No significant new information has been identified that materially changes the proposed action or discussion of environmental effects. Thus, no Supplemental EIS will be prepared.

6000 Legal and Regulatory Issues and other Comments

Comment: The DEIS failed to address Senate Document 80 (SD 80) and the provisions to protect the headwaters of the Colorado River system. WGFP impacts to flows, water quality, fishing, and other resources are contrary to the five guiding principles of SD 80. A decision on SD 80 should be made as part of the EIS.

Response: See responses to legal issues at the beginning of the responses to comments section.

Comment: The reduction in flows below Granby Reservoir would result in a violation of the "Principles to Govern the Release of Water at Granby Dam to Provide Fishery Flows Immediately Downstream in the Colorado River," which was approved on January 19, 1961.

Response: The proposed project will not affect Reclamation releases from Granby Reservoir in accordance with the 1961 principles. The 1961 Principles established the minimum flow releases from Granby Reservoir by Reclamation. Reduced flows below Granby Reservoir are a result of a reduction in the spill of Windy Gap water that was pumped from Windy Gap Reservoir to Granby Reservoir. These spills would occur less frequently because a new WGFP reservoir would increase available storage for Windy Gap water.

Comment: The Preferred Alternative includes prepositioning, which allows storage of C-BT Project water in Chimney Hollow Reservoir. This is not legal and could increase C-BT storage in Granby.

Response: See responses to legal issues at the beginning of the response to comments section.

Comment: How can a Municipal Subdistrict be allowed to use federal (C-BT) facilities to transport their water? What are the fees charged for this transport? Why are my federal tax dollars and federal facilities being used for an eastern slope water district?

Response: The Subdistrict is allowed to use excess capacity in the C-BT Project system that is not required for either storage or transport of C-BT Project water. This is consistent with Reclamation policy that allows such use. The proposed project may not adversely affect use of the C-BT Project for its authorized purposes. See responses to legal issues at the beginning of the responses to comments section.

Response to Form Letter Comments

A total of 714 individual written comments were submitted in either of two separate form letters. Individuals who submitted a form letter are listed alphabetically by last name in Table 4. The two form letters were coded and have been reproduced (following Table 4) with Reclamation's response to each of the numbered comments.

Table 4. Form letters by individual.

Last Name	First Name	Doc ID	Type ID
Aamot	Christopher	589	Form 2
Abrahamson	Brad	258	Form 1
Acee	Ron	1050	Form 1
Alderson	George and Frances	590	Form 2
Alfred	Lynda	427	Form 1
Allen	Michael	285	Form 1
Allen	Rich	591	Form 2
Amador	Terry	428	Form 1
Andersen	Kristen	429	Form 1
Anderson	Kurt	849	Form 2
Anderson	Victoria	850	Form 1
Andrews	Terry	430	Form 1
Angevine Ph.D.	Brian G.	307	Form 1
Anhorn	Sharon	592	Form 2
Anthony	Robert	851	Form 2
Apodaca	Mel	593	Form 2
Archer	Brian	594	Form 2
Archuleta	Jeff	595	Form 1
Arellano	Albert	431	Form 1
Arent	David	596	Form 2
Artale	Robert	432	Form 1
Aslami	Mohammad	852	Form 1
Asseff	Sam	597	Form 1
Babcock	Dan	433	Form 1
Bachmann	Patrick	210	Form 1
Baker	Brad	598	Form 1
Bandres	Annemarie	599	Form 2
Baranek	Petr and Dita	600	Form 2
Baranowski	Ruth	601	Form 1
Barrett	Barbara J.	434	Form 1
Barrett	Branon	853	Form 1
Barrett	William	854	Form 2
Bates	Matthew	259	Form 1
Batten	Bennett	435	Form 1
Batten	Bennett	855	Form 1
Baus	Sherry	602	Form 2
Baylin	Frank	436	Form 1
Beadleston	Marina	603	Form 1
Beaulieu	Dave	604	Form 1
Beaulieu	Shannon	857	Form 1
Beck	Charles	605	Form 2
Beckwith	Dr. Jill	606	Form 2
Beeman	Nancy	607	Form 2
Beeman	Wayne	608	Form 2
Bell	Gail	609	Form 2
Bell	W.C.	211	Form 1
Bennett	Douglas	308	Form 1
Benson	Sherry	858	Form 1
Benton	Clayton	610	Form 2
Benway	Charles M.	859	Form 1
Beranato	Philip	860	Form 1
Berendt	Nikolas	309	Form 1
Bernstein	Danny	260	Form 1
Bigger	John	611	Form 2
Black	Karina	862	Form 2
Blair	Peter	612	Form 2
Blasig	Roy A.	310	Form 1
Blubaugh	Kim	613	Form 2
Blubaugh	Kim	863	Form 1
Blumer	Marc	437	Form 1
Bocchino	John	864	Form 1
Bolinger	Ira Brett	311	Form 1
Bonetti	Donna	614	Form 2
Bonetti	Donna	615	Form 1
Bookman	John	1055	Form 1
Bosshard	Maureen	282	Form 1
Bourgeois	Paula	865	Form 1
Bowler	Brendan	438	Form 1
Bowsher	Nancy	866	Form 2
Boyd	Robert E.	439	Form 1
Bracken	Lisa	616	Form 1
Bradford	David	867	Form 2
Bradford	Deborah	617	Form 2
Bradford	Duke	1056	Form 1
Bradley	Ernest	261	Form 1
Bray	Annette	618	Form 2
Brennan	Joseph	619	Form 2
Breska	Jan	869	Form 2
Brideau	Edith	440	Form 1
Brinley	Bryan	441	Form 1

Last Name	First Name	Doc ID	Type ID
Brooks	S	620	Form 2
Brown	Boots	621	Form 1
Brown	Brian	262	Form 1
Brown	Douglas G.	442	Form 1
Brown	Ruth	622	Form 1
Bruell	Marc	443	Form 1
Brush	Debbie	870	Form 2
Brush	Debbie	871	Form 1
Bryant	Ned	444	Form 1
Bryers	Susan	623	Form 2
Buckles	Ronald	445	Form 1
Burger	Cynthia	1057	Form 2
Burkhardt	Kerry	624	Form 1
Burley	Penny	446	Form 1
Bushnell	Martha W.	872	Form 1
Buster	Katey	625	Form 2
Button	James	626	Form 2
Camell	Deanna	627	Form 2
Candee	Jonathan	263	Form 1
Carr	Colleen	874	Form 1
Carr	James	875	Form 1
Carren	Claire	628	Form 1
Carson	Catherine	629	Form 2
Carter	Deana	630	Form 2
Carter	Leslie	631	Form 2
Carter	Steven M.	632	Form 1
Caruthers	Scott	876	Form 1
Castan	Christine A.	447	Form 1
Castan	Christine A.	878	Form 2
Cataldo	Lisa	633	Form 2
Catlin	Barbara	879	Form 1
Cervene	Amy	634	Form 2
Cervene	Shirley	635	Form 1
Chamberlin	Dorothy	880	Form 1
Chamberlin	Dorothy and Richard	636	Form 2
Chiaramonte	Luciano	448	Form 1
Ching	Greg	637	Form 1
Ciampa	Mike	881	Form 1
Ciha	Jim	449	Form 1
Clapper	Willard L.	450	Form 1
Clark	Brian	638	Form 1

Last Name	First Name	Doc ID	Type ID
Clark	John	451	Form 1
Clark	Meg	639	Form 2
Clark	Robert	452	Form 1
Cleveland	Shelly	453	Form 1
Cliff	Elizabeth	640	Form 2
Clonts	Jeff	882	Form 1
Colbert	Ian	641	Form 2
Collins	Casey	642	Form 2
Collins	Elizabeth	643	Form 1
Condron	James	884	Form 2
Condron	Sharon	644	Form 2
Connaughty	Kevin	312	Form 1
Cook	Dennis	1064	Form 1
Cornely	John	264	Form 1
Courkamp	Jake	265	Form 1
Courson	Ron	885	Form 2
Courtney	Brian	455	Form 1
Covian	Mark A.	266	Form 1
Cox	Kelly	886	Form 1
Crane	Sherry	646	Form 2
Cranna	Michael	456	Form 1
Creswell	Richard	887	Form 2
Crowther	William	457	Form 1
Cunningham	Kirkwood	888	Form 1
Curlette	Diane	647	Form 1
Currie	Andrew	458	Form 1
Cushing	Colbert	890	Form 1
Cushing	Don	459	Form 1
Daehnick	Debbie	648	Form 2
Dahlin	Hope	891	Form 2
Davies	Alexey	649	Form 1
Decker	D. Todd	313	Form 1
DellaFera	Dr. MaryAnne	650	Form 2
DeNieu	Roberta	651	Form 2
Dick	Justin	892	Form 1
Dickman	Lisa	652	Form 2
Difiore	Greg	893	Form 2
DiGennaro	Louis	314	Form 1
Dikos	John	653	Form 2
Dillard	Kaela	654	Form 2
Dils	Reed	460	Form 1

Last Name	First Name	Doc ID	Type ID
Dittloff	David	894	Form 2
Dobbins	Scott	267	Form 1
Dobson	Dawn	461	Form 1
Dodge	Dayle	895	Form 1
Dodson	Craig	655	Form 1
Doll	Marice	896	Form 1
Doll	Sheryl	656	Form 1
Dombkowski	Linda	268	Form 1
Donnelly	Stephen	897	Form 1
Downing	Andrew	315	Form 1
Drew	Patrick	462	Form 1
Dunkle	Douglas	898	Form 1
Dunn	Bill	657	Form 2
Durian	Philip B.	463	Form 1
Dvorak	Bill	899	Form 1
Dvorak	Bill	902	Form 2
Edelstein Jr.	Robert N.	269	Form 1
Edwards	Carol	658	Form 1
Eggink	Irene	905	Form 2
Emrick	Ken	659	Form 2
Engelmann	Richard	660	Form 1
English	Rebecca	464	Form 1
Erickson	Sally	661	Form 2
Etheridge	Carol	217	Form 1
Evans	Ann	906	Form 2
Evans	Dinda	662	Form 1
Everett	Justin	465	Form 1
Fagerness	Mark	270	Form 1
Faherty	Mary	663	Form 1
Falk	Linda	664	Form 2
Farling	Scott	466	Form 1
Farrell	Courtney	467	Form 1
Farver	Suzanne	468	Form 1
Feigal	Mark	469	Form 1
Ferguson	Sheryl	665	Form 2
Fessler	Bryon	271	Form 1
Festag	Keith P.	316	Form 1
Fiegel	Mary	907	Form 2
Fiester Ph.D.	Thomas L.	470	Form 1
Findley	Stuart W.	219	Form 1
Fissinger	Kaye	667	Form 2
Fitzgerald	Bridget	668	Form 2
Folger	Jessica	669	Form 2
Forbes	Peter	471	Form 1
Foster	Teresa	670	Form 1
Fox	Jennifer	671	Form 1
Fox	Mary	908	Form 2
Frank	Brad	910	Form 1
Freeland	Chris	911	Form 1
Frontczak	Marie	913	Form 1
Fulks	James	472	Form 1
Fuller	Daryl	672	Form 1
Fuller	Michelle	673	Form 1
G	Stuart	473	Form 1
Gale	John W.	221	Form 1
Gardner	Hunter	272	Form 1
Garner	Michael	317	Form 1
Garton	Kenneth	475	Form 1
Gaskins	Mary Anne	674	Form 1
Gaunt	Pam	914	Form 2
Gerard	Marielle	675	Form 1
Gerk	Genise	915	Form 1
Gerlitz	Cheryl	476	Form 1
Giambartolomei	Marcia	676	Form 1
Gibbens	Stefanie	677	Form 1
Gibson	Alex	1070	Form 1
Gibson	Jim	477	Form 1
Gidley	Glen E.	318	Form 1
Giese	Mark M	478	Form 1
Gilfillan	David L.	479	Form 1
Gillette	J	917	Form 2
Gilsdorf	Daniel	273	Form 1
Gilstrap	Chris	918	Form 2
Glasscock	Michael W.	481	Form 1
Glenn	Karen	678	Form 1
Goad	John	319	Form 1
Goba	Agustin	679	Form 2
Goeken	Murlin	919	Form 2
Goff	Charles and Rebecca	483	Form 1
Goff	Rebecca	680	Form 1
Gonzales	Roger	920	Form 2
Gordon	Dave	922	Form 2
Gorecki	Sarah	681	Form 1

Last Name	First Name	Doc ID	Type ID
Gorsuch	Jason	320	Form 1
Gossage	Tim	484	Form 1
Gossert	Warren	682	Form 2
Gray	Blakely	923	Form 1
Gray	Dick	683	Form 2
Griest	Fred	684	Form 1
Griffin	John	1076	Form 1
Grigg	Jamin	485	Form 1
Groenert	Edward	685	Form 2
Grunder	L. Gail	686	Form 2
Guiles	Joseph	924	Form 1
Gull	Flournoy	925	Form 1
Gurarie	David	926	Form 1
Gustafson	Patricia	927	Form 2
Hagen	Dominic	928	Form 1
Hamel	Bob	1077	Form 2
Hanold	Dena	687	Form 1
Harden	Ronald	688	Form 1
Harding	Steve	930	Form 1
Harper	Jody A.	931	Form 2
Harrell	S G	932	Form 2
Harris	Jamie	689	Form 2
Harris	Seth	486	Form 1
Hart	Chuck	487	Form 1
Hartman	Eric	690	Form 2
Havrilla	Alysha	691	Form 2
Hayes	Stan and Sharon	1078	Form 1
Heard	Ann	1079	Form 2
Heimerl	Chris	274	Form 1
Heinrichsdorff	Gernot and Ava	692	Form 1
Heller	Robert	933	Form 1
Henry	Kendall	693	Form 1
Hensel	Charles	488	Form 1
Henshaw	Tom	694	Form 1
Hernden	Dave	489	Form 1
Hershberger	Jame C.	490	Form 1
Higuera	Mike	275	Form 1
Hill	Gerald E.	491	Form 1
Hilson	John	695	Form 2
Hilty	Bill	934	Form 1

Last Name	First Name	Doc ID	Type ID
Himelstieb	Pete	492	Form 1
Himelstieb	Pete	935	Form 1
Hoagland	Bruce S.	223	Form 1
Hoffman	John	696	Form 1
Hofsetz	Therron	493	Form 1
Hogan	J. Patrick	936	Form 1
Hogan	JaimiAnn	1080	Form 1
Hoidahl	Sharon	697	Form 1
Holtz	Dingo	494	Form 1
Horn	Charles	495	Form 1
Horowitz	Tina	698	Form 1
Houseworth	Bradley	937	Form 1
Howard	W Ray	938	Form 2
Howe	Larry	321	Form 1
Hoyer	Eric	699	Form 1
Hudson	Shelly	700	Form 2
Hugins	Chuck and Phyllis	701	Form 2
Hunt	Tom	322	Form 1
Hunter	Tim	702	Form 1
Huyler	Alice	496	Form 1
Ianni	Pamela	703	Form 2
Illg	Cathy	704	Form 2
Immel	Scott	497	Form 1
Ingersoll	George	940	Form 2
Jackaway	Adam	705	Form 1
Jackson	Tom	706	Form 1
James	Gordon	707	Form 1
Jameson	Michael	708	Form 2
Jenkins	Bill	941	Form 2
Jenkins	Crystal	709	Form 2
Jenkins	Susan	942	Form 2
Johann	Andrew	498	Form 1
Johnson	Ana	943	Form 1
Johnson	Brad	710	Form 2
Johnson	James	1082	Form 1
Johnson	Michael	711	Form 2
Johnson	Tim	499	Form 1
Johnson Jr.	Frank E.	323	Form 1
Jones	Christopher R	500	Form 1
Jones	Dennis C.	501	Form 1

Last Name	First Name	Doc ID	Type ID
Judkins	Peter	502	Form 1
Kamens	Ringo	276	Form 1
Kampen	David	503	Form 1
Keegan	Helen	946	Form 2
Keil	Bryan	947	Form 1
Keller	Charles	504	Form 1
Kelman	Ross	505	Form 1
Kelson	Elizabeth	712	Form 2
Ketels	Shaw	713	Form 1
Khristoforov	Mylee	948	Form 2
Kirkpatrick	Jim	277	Form 1
Kirschvink	James	714	Form 1
Klug	James	506	Form 1
Knight	Candice	715	Form 2
Knobloch	Keith	507	Form 1
Kollar	Chad	949	Form 1
Kondreck	Janine	950	Form 1
Korte	Mary	508	Form 1
Kraft	Victoria	716	Form 2
Kramer	Paul	717	Form 2
Kramer	Ted	1086	Form 1
Krol	Tom	228	Form 1
Kronewitter	Collette	718	Form 2
Kuberski	Mike	278	Form 1
Kuberski	Mike	1088	Form 1
Kuchel	Martha	719	Form 2
Kuehn	RJ	509	Form 1
Kuhlman	Kenton H.	324	Form 1
Kunkel	Michael	510	Form 1
L'Enfant	Lee	720	Form 2
Lacy	Duff	721	Form 1
Lade	Marlin	511	Form 1
Lampke	Karen	951	Form 1
Lance	Mark	512	Form 1
Landon	Kevin T.	513	Form 1
Langley	Bill	325	Form 1
Lanred	Berle	515	Form 1
Laptad	LisaJo	952	Form 1
Larime	Barbara	279	Form 1
Larimer	Preston	514	Form 1
LaRock	Ed	1089	Form 1
Larsen	Kara	953	Form 1
Larson	Duane	229	Form 1
Lauman	Dr. Pam	722	Form 2
Leavitt	Dr. David	723	Form 2
Lee	Erin	724	Form 1
Lee	Jason	1090	Form 1
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Levant	Mary	725	Form 2
Lewicki	Christopher	955	Form 1
Lien	David	516	Form 1
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Lightburn	Nadine	517	Form 1
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Link	Andrea	956	Form 2
Loesch	Rebecca	728	Form 2
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Lohr	Margaret	230	Form 1
Long	Eileen	326	Form 1
Long	Jim	519	Form 1
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Lorden	Tommy	281	Form 1
Lovato	Ray	1092	Form 2
Lucas	Kimberly	730	Form 2
Luciano	Aeric	958	Form 1
Lund-Bardi	Francesca	959	Form 1
Lyon	Kelly	520	Form 1
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Mackie	Steve	732	Form 2
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Mantey	Greg	733	Form 2
Marcum	James	521	Form 1
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Martin	Christopher	735	Form 1
Mason	Mike	960	Form 1
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Matthews	Kevin M.	523	Form 1
Maxwell	Susan	328	Form 1
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McClure	Burke and Carol	283	Form 1

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Miller	Lisa	963	Form 2
Miller	Mark J.	286	Form 1
Miller	Michael	236	Form 1
Miller	Michael	1100	Form 1
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Murray	Margaret	747	Form 2
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Neil	Michael	749	Form 2

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Nolan	Natalie	753	Form 1
Noon	Thomas	968	Form 2
Nordquist	Judy	754	Form 2
Norton	Jeff	969	Form 1
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Oldham	Brendan	973	Form 2
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Olmsted	Charles	975	Form 2
Olson	Deb	976	Form 1
Olson Ph.D.	Sherry L.	755	Form 2
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Oppegard	Lydia	757	Form 2
Osborne	Joe	334	Form 1
Palko	Patricia E	758	Form 2
Pardikes	James	539	Form 1
Parker	Doug and Jan	759	Form 2
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Patin	Lori	761	Form 2
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Peirce	Roger	541	Form 1
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Perkins	William	544	Form 1
Peternell	Drew	545	Form 1
Peterson	Cathy	765	Form 2
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Robbins	Mark	779	Form 1
Robertson	Gregory	780	Form 2
Robinson	Brian	339	Form 1
Robinson	Dawn	781	Form 2
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Rochambeau	Rod	782	Form 1
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Rose	Jenna	990	Form 2

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Schoch	Douglas	792	Form 2
Schrotenboer	Susie	793	Form 1
Schultz	Larry	999	Form 1
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Schultz Ph.D.	Arnold L.	998	Form 2
Schulz	Nancy	794	Form 2
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Scoggins	Teresa	294	Form 1
Scrima	Lawrence	795	Form 2
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Seaverns	Ken	341	Form 1
Sessions	Larry	796	Form 2
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Shannon	Robert	1001	Form 1
Sheets MD	Ronald R.	342	Form 1
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Shickman	Muriel	798	Form 2
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Shirek	Beth	1002	Form 2
Shoenfeld	Greg	799	Form 2
Shotwell	Andreia	800	Form 2
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Soehrmann	Ann	804	Form 2
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Springfield-Verna	Karen S.	805	Form 2
Sprowl	Christopher	247	Form 1
Steele	Dr L.	1013	Form 2
Steele	John	1012	Form 1
Steidle	Tim	806	Form 1
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Stephens	Tim	808	Form 1
Stettner	Robert	346	Form 1
Steve	Glazer	482	Form 1
Stewart	Laurence	809	Form 2
Stewart	Robert	1014	Form 1
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Still	John	1015	Form 1
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Stout	Gene	810	Form 2
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Stredwick	Tom	298	Form 1
Strickland	Clay	1019	Form 1
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Sudduth	Alice	812	Form 2

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Tempelman	Steven	1025	Form 2
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Terry	Noalani	1026	Form 1
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Thompson	Ron	1125	Form 1
Thrailkill	James	819	Form 2
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Tinus	Carolyn	1027	Form 2
Tomasso	Gerard I.	574	Form 1
Tracy	Christopher	820	Form 2
Travis	Scott	1028	Form 1
Trefry	Kathleen	821	Form 2
Treufeldt-Franck	Annette	1029	Form 2
Turco	Michelle	822	Form 2
Turner	Wayne and Kathy	575	Form 1
Unrau-Goring	Brent	823	Form 1
Van Buskirk	Rick D.	301	Form 1
Van WInkle	Wynona	825	Form 2
Van Wyk	Mark	348	Form 1
Vanderkooi	Dr. Lois	824	Form 2
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Vialpando	Mark	577	Form 1
Vivian	Bonnie	578	Form 1
Voggesser	Carrie	1031	Form 2

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Walcott	Craig	581	Form 1
Walek	Kathleen	830	Form 1
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Wallace	Michael	302	Form 1
Waltz	Rev. William L.	583	Form 1
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Webber	Elisabeth	1037	Form 2
Weiss	David K.	303	Form 1
Weiss	Stuart	1038	Form 2
Weissenberger	Erik	304	Form 1
West	Stephen	584	Form 1
Westgaard	Suzanne	1040	Form 2
Wheeler	Karen	834	Form 2
White	Karin	835	Form 2
Whiteside	Glenn	836	Form 1
Whiteside	Glenn	837	Form 2
Whyman	Roger	838	Form 2
Wilber Jr.	George E.	350	Form 1
Wildgen	Kevin B.	351	Form 1

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Wood	Joyce	1044	Form 2
Woodford	Michael	1045	Form 2
Woodworth	Kerala	1137	Form 1
Wooley	Kurt	254	Form 1
Woznick	Theo	1046	Form 2
Wright	Jan	843	Form 2
Writz	Robert	844	Form 1
Wurster	Ben	353	Form 1
Ycas	Trevor	845	Form 1
Young	Claudia	846	Form 2
Young	Lucas	585	Form 1
Youngson	Patricia	847	Form 1
Zacharczyk	Phillip	1048	Form 1
Ziegelman	Kevin D.	305	Form 1
Zinn	Lennard	586	Form 1
Zipp	Alexander	587	Form 1
Zubaedi	Omar	1049	Form 2
Zuboy	Jim	588	Form 1
Zumbrennen	Joseph	306	Form 1

Form Letter 1

Com-ment	Form Letter 1	Response
1 2 3 4 5	**From:** **To:** WTULLY@gp.usbr.gov; **Subject:** Citizen Comment on the Windy Gap Firming Project **Date:** Friday, December 19, 2008 5:18:17 PM Will Tully Dear Will Tully, I want to express my support for the following proposals submitted by Trout Unlimited, the Colorado Environmental Coalition, Western Resource Advocates and other conservation organizations, in response to the Bureau of Reclamation's Draft Environmental Impact Statement for the Windy Gap Firming Project (WGFP). The Colorado River supports numerous environmental, recreational and economic values that are under strain from current depletions and could be further harmed by the WGFP. The Draft Environmental Impact Statement falls short of providing an accurate picture of the impacts of the WGFP in the context of other demands on the river. A Supplemental Draft Environmental Impact Statement is warranted and should address - and resolve - the following issues: Reclamation should analyze the cumulative impacts of all trans-basin diversions from the Colorado River, including a careful assessment of existing impacts from the Colorado-Big Thompson Project and Moffat Collection System, and not just the direct impacts of WGFP. The Supplemental DEIS should include a more rigorous assessment of fishery flow needs with the goal of developing options that could attain - or come close to attaining - the targets presented in the Grand County Streamflow Management Plan study. The implications of WGFP on the Colorado River's potential suitability for Wild and Scenic River designation should be documented, and measures to avoid those impacts should be included as requirements for any federal approvals. The Supplemental EIS should use the State of Colorado's temperature standards in assessing temperature impacts, and	1. A Supplemental EIS is only needed if there are substantial changes in the proposed action or if significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts are identified. There are no substantial changes in the proposed action. Operation of the Preferred Alternative was modified slightly in the FEIS to mitigate potential impacts identified in the DEIS. These measures include modification to prepositioning to maintain higher water levels in Granby Reservoir and other mitigation measures to minimize and avoid adverse effects to other resources affected by the WGFP. No significant new information has been identified that materially changes the proposed action or discussion of environmental effects. Thus, no Supplemental EIS will be prepared. 2. The WGFP EIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as past, present, and other reasonably foreseeable future actions. The cumulative effects analysis for resources was analyzed in the same level of detail as the direct impacts of the WGFP. 3. The Grand County Stream Management Plan (SMP) was considered during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. The target goals in the SMP indicate optimum flows for maximizing aquatic habitat. Such flows may not be available considering water rights already issued by the State of Colorado. However, mitigation measures included in the FEIS, including the *Fish and Wildlife Mitigation Plan* developed with the CDPW, would help meet some of the goals of the SMP. The Subdistrict also is working with Grand County, other West Slope entities, and Denver Water to better coordinate and operate facilities to benefit aquatic life. 4. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being conducted by the Bureau of Land Management (BLM). BLM will complete the suitability evaluation as part of its RMP revision process with recommendations given in a Draft EIS that was released on September 16, 2011. BLM's policy is to manage and protect eligible river segments so as not to adversely constrain the suitability assessment or any

5	determine which operational changes are necessary for WGFP to avoid violations of state water quality temperature standards. Those changes should be included as requirements of any federal approvals.	subsequent recommendations to Congress. River or stream segments must be found eligible and suitable to be considered for designation in the National Wild and Scenic Rivers System and only Congress or the Secretary of the Interior can designate segments. Recreational values are among the outstanding remarkable values identified for each river segment. The EIS discusses and acknowledges this ongoing process in the Recreation section. While the effects to river recreation described in the EIS could relate to the recreational values along the Colorado River, it is BLM's responsibility to determine the suitability of each reach being considered for Wild and Scenic designation. 5. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not.
6	The Supplemental EIS should look at non-structural alternatives to WGFP, such as water conservation programs and dry-year leasing of irrigation water, which would not deplete the Colorado. Thank you for the opportunity to comment.	6. To assure efficient use of Windy Gap water on the eastern slope, the WGFP Participants will be required to acquire and maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365) as amended. This requirement will also be extended to any participant that acquires shares in the WGFP from the existing participants. Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other municipal water providers and water districts have committed to acquiring a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict WGFP Participants for use of C-BT facilities. Other options like dry year leasing would not provide the reliable long-term water supplies needed to meet projected needs.

Form Letter 2

Com-ment	Form Letter 2	Response
	From: _____ To: wtully@gp.usbr.gov Subject: Windy Gap Firming Project DEIS Comment Date: Wednesday, December 24, 2008 11:49:38 AM Dec 24, 2008 Mr. Will Tully 11056 W. CR 18E Loveland, CO 80537 Dear Mr. Tully,	
1	Thank you for the opportunity to comment on the Windy Gap Firming Project. The Colorado River supports numerous environmental, recreational and economic values that are under strain from current depletions and could be further harmed by the WGFP. The Draft Environmental Impact Statement falls short of providing an accurate picture of the impacts of the WGFP in the context of other demands on the river. A Supplemental Draft Environmental Impact Statement is warranted and should address and resolve - the following issues:	1. Supplemental EIS is only needed if there are substantial changes in the proposed action or if significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts are identified. There are no substantial changes in the proposed action. Operation of the Preferred Alternative was modified slightly in the FEIS to mitigate potential impacts identified in the DEIS. These measures include modification to prepositioning to maintain higher water levels in Granby Reservoir and other mitigation measures to minimize and avoid adverse effects to other resources affected by the WGFP. No significant new information has been identified that materially changes the proposed action or discussion of environmental effects. Thus, no Supplemental EIS will be prepared.
2	1. Given the overwhelming scientific evidence supporting climate change, and the lack of analysis in the DEIS, the Supplemental EIS must analyze the impacts of climate change together with the impacts of the Windy Gap Firming Project.	2. The discussion of climate change in Section 2.8.2 Reasonably Foreseeable Actions was revised in the FEIS. This section includes updated information from recent publications on climatic change trends in the Upper Colorado River basin and possible future changes. Potential environmental impacts from climate change are qualitatively evaluated as part of the cumulative effects evaluation for applicable resources in Chapter 3 of the FEIS.
3	2. The Supplemental EIS should more rigorously assess the impacts to recreational boating and angling as the Draft EIS uses a hydrological model that underestimates potential flow impacts and the resulting impacts on recreational activities.	3. The hydrologic model used to evaluate resource impacts provides a reasonable basis for comparing the alternative actions to existing conditions. The responses to Comment Letter No. 1075 (Comment Nos. 1 to 5) provide more detail. The Recreation section of the FEIS includes a revision of the analysis of boating impacts related to changes in preferred flows to simplify and clarify potential impacts. The Aquatic Resource section of the FEIS also includes presentation of revised material to better characterize impacts to aquatic life.
4	3. There will be a permanent loss of 810 acres of big game habitat from the creation of Chimney Hollow Reservoir. Thus, the Supplemental EIS should provide more rigorous analysis about how migration patterns will be mitigated and how habitat loss will be offset.	
5	4. Reclamation should analyze the cumulative impacts of all trans-basin diversions from the Colorado River, including a careful assessment of existing impacts from the Colorado-Big Thompson Project and Moffat Collection System, and not just the direct impacts of WGFP.	
6	5. The Supplemental DEIS should include a more rigorous assessment of fishery flow needs with the goal of developing options that could attain or come close to attaining the targets presented in the Grand County Streamflow Management Plan study.	
7	6. The implications of WGFP on the Colorado River's potential suitability for Wild and Scenic River designation should be documented, and measures to avoid those impacts should be included as requirements for any federal approvals.	

Com-ment	Form Letter 2	Response
8	7. The Supplemental EIS should use the State of Colorado's temperature standards in assessing temperature impacts, and determine which operational changes are necessary for WGFP to avoid violations of state water quality temperature standards. Those changes should be included as requirements of any federal approvals.	4. Construction of Chimney Hollow Reservoir would result in the inundation and loss of range for big game species such as elk and deer, and foraging habitat for black bear. The new reservoir would affect movement patterns for big game, but would not impact any specifically defined mitigation route. The loss in winter range represents about 0.2 percent of the available winter range in the CDPW Game Management Unit. Proposed mitigation includes habitat improvement and management measures to enhance wildlife at Chimney Hollow. Mitigation measures are part of the *Fish and Wildlife Mitigation Plan* developed in cooperation with the CDPW (FEIS Appendix E). 5. The WGFP EIS fully considered the cumulative impacts of the Moffat Collection System Project, as well as past, present, and other reasonably foreseeable future actions. The cumulative effects analysis for resources were analyzed in the same level of detail as the direct impact of the WGFP. 6. The Grand County Stream Management Plan (SMP) was considered during preparation of the EIS. Our understanding is that the objective of the SMP was to develop recommendations of preferred streamflow regimes to support stream health for aquatic habitat and other nonconsumptive water uses, as well as the flow regimes necessary to support water use requirements for irrigators, municipalities, industry, and recreation. The focus of the EIS was to evaluate and disclose the anticipated environmental effects of the alternatives. Where adverse effects were identified, mitigation measures were identified to offset or minimize those impacts. The mitigation measures developed for the WGFP are linked to identified project impacts and may not necessarily meet the target recommendations included in the SMP. The target goals in the SMP indicate optimum flows for maximizing aquatic habitat. Such flows may not be available considering water rights already issued by the State of Colorado. However, mitigation measures included in the FEIS *Fish and Wildlife Mitigation Plan* developed with the CDPW, would help meet some of the goals of the SMP. The Subdistrict also is working with Grand County, other West Slope entities, and Denver Water to further develop mitigation and better coordinate and operate facilities to benefit aquatic life. 7. Evaluation and potential designation of portions of the Colorado River as Wild and Scenic is a separate and ongoing process being pursued by the BLM. Recreational values are among the outstanding remarkable values identified for each river segment. This process is described in the Recreation section of the DEIS. While the effects to river recreation described in the DEIS could relate to
9	8. The Supplemental EIS should look at non-structural alternatives, such as water conservation programs and dry-year leasing of irrigation water, which would not deplete the Colorado.	

Com-ment	Form Letter 2	Response
		the recreational values along the Colorado River, BLM is ultimately responsible for determining whether or not a certain reach of the river meets the criteria for designation as Wild and Scenic. 8. Additional stream temperature and climatic data became available following the initial analysis of temperature impacts for the DEIS. Subsequently, a dynamic temperature model (Hydros 2011) was developed with input and review by EPA to simulate weekly average temperatures and daily maximums for the Colorado River between Windy Gap Reservoir and the Williams Fork for existing conditions and the alternatives. The model simulations were conducted for the months of June through September using the very warm observed climatic data from 2007. Results of this analysis indicated that increased exceedance of the chronic MWAT and acute DM standards would occur in July and August of some years. Specifically, temperature standard exceedances were simulated to increase from existing conditions in 4 out of the 15 years evaluated with additional WGFP diversions. For these years, the dynamic modeling indicated that the MWAT standard would be exceeded for several consecutive days or weeks and the DM would be exceeded up to several additional days, when simulated with the very warm 2007 meteorology. Mitigation for temperature impacts is included in the *Fish and Wildlife Mitigation Plan* developed by the Subdistrict. See Section 3.8.4.2 for further discussion of temperature mitigation. Temperature mitigation measures would reduce the potential for exceedance of the temperature standards and impacts to fish associated with operation of the WGFP. Other factors including low precipitation, diversions by others, and WWTP discharges also contribute to elevated stream temperatures, whether the WGFP is pumping or not. 9. To assure efficient use of Windy Gap water on the eastern slope, the WGFP Participants will be required to acquire and maintain a state-approved water conservation plan in accordance with the Water Conservation Act of 2004 (Colorado House Bill 04-1365) as amended. This requirement will also be extended to any participant that acquires shares in the WGFP from the existing participants. Seven of the WGFP Participants have Colorado Water Conservation Board (CWCB)-approved plans, and other municipal water providers and water districts have committed to acquiring a CWCB-approved plan prior to delivery of WGFP water. Reclamation would require maintenance of a state-approved water conservation plan as a condition to a contract with Subdistrict WGFP Participants for use of C-BT facilities. Other options like dry year leasing would not provide the reliable long-term water supplies needed to meet projected needs.