



COMMENT LETTER PWI08

Carol DeAngelis, Area Manager  
Western Area Office  
US Bureau of Reclamation  
2764 Compass Drive, Suite 106  
Grand Junction, CO 81506

April 24, 2009

Re: Draft Environmental Impact Statement (DEIS) for Aspinall Unit Operations

Dear Carol:

We are writing to provide the Colorado River Water Conservation District's ("River District") comments on the February 13, 2009 Draft Environmental Impact Statement (DEIS) for Aspinall Unit Operations. The River District is a cooperating agency for Reclamation's NEPA process on the Aspinall Unit and has been closely involved in Aspinall Unit operations and, more broadly, Gunnison River issues for decades. As you know, the River District appropriated the water rights for the Aspinall Unit and subsequently conveyed the rights to the United States.

We would like to recognize the significant effort of you and your staff in preparing this DEIS. We also wish to express our appreciation to Reclamation for working closely with the River District and other interested parties during the development of the DEIS.

The River District supports Reclamation's adoption of the Preferred Alternative (Alternative B). The DEIS adequately demonstrates that Alternative B best balances the multiple demands on the Aspinall Unit, while continuing to honor its authorized purposes under the Colorado River Storage Project Act. We have not provided specific comment on the other alternatives considered by Reclamation but note that the adverse impacts to Aspinall Unit lake levels and the increased selenium concentrations that are predicted to occur in Alternative C demonstrate that it would not be viable for Reclamation to adopt Alternative C.

The River District also supports Reclamation's Biological Assessment (DEIS Appendix B) because it is designed to provide ESA compliance for the Aspinall Unit as well as for interrelated and interdependent private and public water uses in the Gunnison River Basin. We believe that the Biological Assessment provides a workable framework to address the flow and non-flow related issues, such as water quality, in a manner sufficient for the United States Fish & Wildlife Service to issue an anticipated Programmatic Biological Opinion.

There are some portions of the DEIS that we believe could use clarification and improvement. We trust that you will accept our comments in the constructive nature in which they are intended. Our specific comments follow:

201 Centennial Street / PO Box 1120 • Glenwood Springs, CO 81602  
(970) 945-8522 • (970) 945-8799 Fax  
[www.ColoradoRiverDistrict.org](http://www.ColoradoRiverDistrict.org)

CRWCD's Comments on Aspinall Unit DEIS

April 24, 2009

Page 2

1. In general we believe the DEIS is technically adequate but would benefit from additional analysis and detail. Absent further analysis, we believe the final document should include a discussion that recognizes and defines the limits of the input data and modeling methodology employed in the DEIS. PWI08-01
- a. The narrative should explain that the hydrological analysis is not designed to be exhaustive and may not be adequate to provide a robust "absolute" assessment of alternatives or probabilities. Rather it should be noted that the hydrological analysis is best suited for, and limited to, a relative analysis of action alternatives against the "No Action" alternative or relative to this "baseline". A prime example of the need for this clarification is the use of a "single trace" model based upon a 31-year fixed period of record that produces "deterministic" results. That is, there is only one answer for the single input data set. If and when the basin experiences hydrological conditions that differ significantly from historical records in this single trace (e.g., an extended dry or even average dry period) the model results cannot capture, depict nor simulate this condition. The DEIS therefore represents a very small or limited sample of potential outcomes; the document should more clearly state that the impacts described are a subset of illustrative estimates only. PWI08-02
- b. In several places, the DEIS states "significant negative impacts on water rights are not expected under the action alternatives." (e.g., pgs. 3-6, 3-30). The River District believes that additional analysis would be necessary using a different input dataset and multiple model traces to reduce the significant uncertainty of this statement. A better predictive methodology would be to use a dataset that contains greater variability and incorporates some randomness to provide a more statistically defensible probabilistic approach. A robust analysis about the model's uncertainty would help to quantify errors that might be inherent in the methodology and/or in the data. This would help the reader understand the limitations of the model and data and potentially identify areas and/or parameters that may need additional study, refinement or definition. PWI08-03
- c. The water rights analysis should more explicitly recognize that it is essential to water users in the basin that late season flows be maintained at or near historical levels near Whitewater. This is critical because sufficient water levels are necessary to support migration flows for the endangered fish species during low flow conditions, and to prevent selenium concentrations from becoming excessive due to the loss of dilution flows. The maintenance of sufficient flows late in the season is critically important to junior water users (particularly storage rights) because the senior right of the Redlands Water and Power Company has the potential to "call out" the entire basin if it experiences a shortage and cannot divert its full decreed water right. If these late season levels are maintained, the Preferred Alternative should not cause any negative water right impacts as compared to the No Action alternative. However, the uncertainty in the model PWI08-04

CRWCD's Comments on Aspinall Unit DEIS

April 24, 2009

Page 3

- results may be too significant to provide the level of certainty desired by water users against the potential of a late season “call” by the Redlands Water & Power Company.
- d. We also believe that a sensitivity analysis should be included as part of the analysis to quantify how potential changes to the historical dataset used in the model may influence the results. For example, if inflows are decreased by 10% on an average annual basis due to climate change, as is discussed on page 2-14, how would the ability to meet flow targets (e.g., frequency, duration) be impacted? PWI08-05
2. We have several significant concerns with respect to the discussion of selenium and related issues in the DEIS and Biological Assessment. The River District has been an integral participant in the Gunnison Basin Selenium Task Force since the inception of the Task Force in 1998. In addition to the substantial financial contributions needed to reduce selenium levels, we believe that Reclamation should further address the following technical issues related to selenium:
- a. Additional selenium monitoring and quantification of the relationship between selenium concentrations and specific conductance (SC) should be a part of the proposed actions under the Biological Assessment. This relationship could allow greater efficiency in monitoring and improve the understanding of temporal changes of SC and selenium. PWI08-06
- b. A statistical trend analysis is needed to understand how current selenium control efforts and growth patterns are affecting selenium concentrations in the lower Gunnison before a selenium management plan can be implemented. PWI08-07
- c. It would be helpful to expand the flow versus selenium analysis for several other sites in the lower Gunnison Basin and to lengthen the period of record of selenium analysis to present day (the current analysis only examines Whitewater and stops in 2005). PWI08-08
- d. It must be noted that flow and concentration are inversely related, such that when flows are decreased as under late season conditions, concentrations increase; this is depicted in Table 3.3.8 in Volume I and Table 20 in Appendix B of Volume 2. This suggests that with respect to selenium, meeting late season flow targets may be more important than meeting spring peak flows. PWI08-09
3. There are multiple references in the DEIS to the “pending” decree to quantify the reserved water right for the Black Canyon National Park. The Division 4 Water Court entered the decree on December 31, 2008, so references in the text should be updated to reflect that the Black Canyon water right has been decreed. The text should also be updated to address the terms and conditions in the decree that interrelate with the PWI08-10

CRWCD's Comments on Aspinall Unit DEIS

April 24, 2009

Page 4

operation of the Aspinall Unit so that the public can better understand from the final EIS how the United States' reserved right for the Black Canyon will be exercised in coordination with operation of the Aspinall Unit.

4. Section 1.5: Connected and Related Actions. This section discusses the federal actions that are related to operation of the Aspinall Unit. We recommend that this section include a reference to the non-federal water operations and depletions that are included in the consultation described in the Biological Assessment (Appendix B). PWI08-11
  
5. Flood avoidance. The DEIS contains numerous references to flood avoidance measures that Reclamation can implement to help prevent flooding at Delta (*e.g.*, Section 2.3.3.2). The references sometimes refer to avoidance measures that are implemented at 14,000 c.f.s. and sometimes at 15,000 c.f.s. It is our understanding that Reclamation normally undertakes informal preliminary flood control management action when flows at Delta are above 12,000 c.f.s. The current language implies that flood management does not begin until flows at Delta exceed either 14,000 or 15,000 c.f.s. The EIS should disclose that informal flood control operations can and often do begin at 12,000 c.f.s. PWI08-12
  
6. Aspinall Unit yield. There are several discussions in the DEIS and the BA regarding the Aspinall Unit yield (*e.g.*, Section 2.3.6.6, pg. 2-16; Section 3.3.1.1B, pg. 3-9; BA, p. 45; and Appendix to BA at pg. 54-55). The River District is concerned that the language used by Reclamation is incorrect and perpetuates a common misunderstanding regarding the yield of the Aspinall Unit.
  - a. The discussions in the DEIS about the "safe yield" of the Aspinall Unit are largely beyond the scope of the EIS. We strongly believe that identifying any quantity of potential yield is misleading and unnecessary. While anecdotal evidence and a few theories suggest various quantities, no analysis or modeling has been conducted that provides a credible basis for asserting a specific quantity of water that can be sold from Blue Mesa Reservoir. Proponents of a defined "marketable yield" sometimes refer as support to a footnote in the Colorado Supreme Court's decision. Proponents of a defined "marketable yield" sometimes refer as support to the discussion of the Aspinall Unit in the Colorado Supreme Court's decision in *Board of County Commissioners of Arapahoe County v. Crystal Creek Homeowners Assoc.*, 14 P.3d 325 (Colo. 2000) (*Arapahoe II*). That reference is misplaced because the supreme court's discussion of a marketable yield is not supported by the facts presented at trial. In fact, the Colorado Division 4 Water Court issued a ruling that undermines any factual or legal support for a 240,000 acre foot marketable yield that is based on the *Arapahoe II* decision. We have attached the Colorado Division 4 Water Court's June 18, 1998 post-trial order on this subject for your reference. The court's order states in part that the specifics of the court's ruling on the so-called marketable yield of the Aspinall Unit "are dicta [and] the court does not consider its findings and conclusions in this regard to bePWI08-13

*CRWCD's Comments on Aspinall Unit DEIS*

*April 24, 2009*

**Page 5**

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preclusive in any subsequent litigation between the parties under the doctrine of collateral estoppel.

Regardless of the legal dispute, a determination of the firm yield of the reservoir under all possible development scenarios would be a complex task, and one that has not been attempted by Reclamation or others. Therefore, the River District strongly suggests that all references to a specific quantity of water be removed from the discussion of project yield.

- b. To the extent Reclamation determines it necessary or helpful to include a discussion of Aspinall Unit yield in the final EIS, we strongly recommend that Reclamation adopt more balanced, less controversial language that is less likely to confuse the public. Proposed compromise language that accurately discusses the subject to the extent necessary for the EIS is set forth below: PW108-14

Under all alternatives “remaining project yield” (not precisely known) will continue to be stored or released downstream pursuant to the Colorado River and Upper Colorado River Basin Compacts, and subject to and consistent with the Unit’s authorized purposes, water court decrees, and other applicable laws. The State of Colorado has consumptive use depletions remaining for use under the Colorado River Compact of 1922 and the Upper Colorado River Basin Compact and a portion of this would legally be available for development using sources in the Gunnison River Basin. The potential use of the remaining Unit yield is not modeled because specific foreseeable projects are not available. It is recognized, however, that future uses can occur downstream of the Unit and therefore releases could serve dual purposes of fish recovery and development of Colorado’s compact entitlement. When future water sales or uses of the portions of the “remaining project yield” from the Unit are proposed, the proposals will be evaluated under NEPA. If Reclamation determines that the proposed sale or use may adversely affect a listed species, formal ESA consultation will commence. If the Recovery Program has made sufficient progress implementing the Recovery Action, then implementation of the Recovery Program (if then in effect) will be considered in determining the reasonable and prudent alternatives for the proposed action. The Section 7 Consultation, Sufficient Progress, and Historic Projects Agreement for the Upper Colorado River Basin Recovery Implementation Program, as revised in 2000, provides information on ESA compliance for future projects.

CRWCD's Comments on Aspinall Unit DEIS

April 24, 2009

Page 6

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- c. The Aspinall Unit yield discussions in the DEIS occasionally are coupled with a discussion about the State of Colorado's remaining entitlement under the Colorado River Compact of 1922 and the Upper Colorado River Basin Compact. The amount of the state's remaining compact entitlement is the subject of considerable discussion and dispute within the State. A specific quantity likely cannot be determined; instead, the remaining compact entitlement can be best characterized by the level of risk the state and its water users are willing to accept that future depletions will be subject to curtailment for compact administration. The determination of that risk is dependent upon multiple complex factors that are substantially beyond the scope of the Aspinall Unit EIS. The State of Colorado currently is conducting a study to better define the state's remaining compact entitlement and the associated levels of risk of curtailment. The study is not anticipated to be complete until late 2010 at the earliest. We do not believe that the amount of the state's remaining compact entitlement is relevant to the scope of the EIS and strongly recommend that Reclamation delete any reference or discussion of this issue in the final EIS. At a minimum, discussions about the state's remaining compact entitlement should be significantly qualified. PWI08-15
7. Operation to meet demands of downstream water rights (*See* in general, Section 3.3.1.1B, pg. 3-9, second paragraph; and Section 3.3.1.1D). A legal dispute exists regarding whether Reclamation is required to make releases from storage to satisfy downstream rights. Without waiving any claim or defense about the requirements of Reclamation's water court decrees, the River District recognizes the limitation of the modeling analysis and the scope of the EIS is not intended to address or resolve this issue.
8. Organizational suggestions and errata:
- a. There are several basic improvements that we believe will increase the readability of the document. First of all, the inclusion of an executive summary would be an excellent addition. The 7-page document that was distributed at the public meetings would meet this need. PWI08-16
- b. In general, the graphs provided throughout the documents are helpful, but are typically small and as such, are not resolved enough to adequately depict the differences between the action alternatives. This is exemplified on the selenium figures (*e.g.*, Figure 3.3-21 and 3.3-22 Vol. 1). The lines are very difficult, if nearly impossible to differentiate, which is particularly important in determining if the selenium value is above or below 4.6 ppb. Additionally, the units of selenium measurement should be noted as a ppb or as ug/l not mcg/l on the axis and in the list of acronyms. More importantly, to accurately disclose potential impacts of the proposed action, we strongly suggest that different metrics be used in the tables of results. Using the average only as a comparison of 31 years of PWI08-17

CRWCD's Comments on Aspinall Unit DEIS

April 24, 2009

Page 7

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data, which are highly variable (from very dry to very wet conditions), can mask the results. We suggest instead, segregating the results into the six hydrological year types and then calculating statistical metrics (e.g., average, median, maximum, minimum, etc.) for each year class. This should be applied to all pertinent tables, particularly the Tables in Appendix A. In addition, the tables that tally up the number of days a particular event occur (e.g., Tables 19 and 20 I Appendix A) should have totals for ease of comparison between alternatives.

- c. Table 3.38 in Volume I depicts selenium concentrations above 4.6 ppb and compares these simulated results to the No Action. In Volume II there is a similar Table on page 96 that depicts the number of days that baseline selenium concentration exceeds 4.6 ppb. The No Action value appears to be different from the Baseline. If this is purposeful, the baseline value (estimated or observed?) should be redefined and clearly differentiated from the No Action (simulated?).

PWI08-18

Sincerely,



R. Eric Kuhn  
General Manager

Attachment: Order dated June 18, 1998, Case No. 88CW178, Water Division 4

cc: CRWCD Board of Directors  
Peter Fleming, General Counsel, CRWCD  
Jennifer Gimbel, Director, Colorado Water Conservation Board  
John H. McClow, Esq., Upper Gunnison River Water Conservancy District  
David Baumgarten, Esq., Gunnison County  
Tom Alvey, North Fork Water Conservancy District

DISTRICT COURT, WATER DIVISION NO. 4, COLORADO

Case No 88 CW 178

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ORDER REGARDING MOTION FOR AMENDMENT OF FINDINGS FILED BY THE GUNNISON DISTRICT ON MAY 19, 1998.

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In the Matter of the Application for Water Rights of

THE BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF ARAPAHOE

in Gunnison County, Colorado.

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Following entry of its Decree in this case on April 6, 1998, the Court entered an order at the request of some of the parties which extended the deadline for any party to file post-trial motions including motions for appropriate bills and costs. The deadline established was May 21, 1998. The only parties availing themselves of this opportunity were two opposers: the Gunnison District and the River District [the "Districts"] which filed a Motion for Amendment of Findings on May 19, 1998. No other post-trial motion has been timely filed.

The Districts' Motion for Amendment of Findings elicited responses and replies by Crystal Creek and the applicant, the County of Arapahoe, and a reply by the Districts to Crystal Creek's response. The last brief received was Arapahoe's reply to Crystal Creek's response to the Motion for Amendment of Findings on June 15, 1998. It may be that one or more parties believe that they have the right to reply further, but the Court is satisfied that it understands the issues raised and it is prepared to rule on the issues without further input from the parties. Also, the undersigned Judge will be on vacation from June 22 through July 10, 1998 and he recognizes that C.R.C.P. 59(j) requires a ruling on post-trial motions within 60 days after they are filed. Because little time would remain for the Court to act upon the motion after Judge Brown returns from vacation, the following orders are entered at this time, to wit:

1. The Court finds that the Districts are correct with respect to the Clerical mistakes't which are identified in the Motion for Amendment in paragraph 1(a) through 1(f) inclusive. The Court finds and concludes that the requested amendment should be granted with respect to these mistakes.

2. The Districts are also correct in stating that this Court's summary in paragraph 93 on page 51 of the April 6, 1998 Decree incorrectly summarized its previous decree of May 30, 1991 in Case 88-CW-183. With one modification the Court adopts the Districts' requests for amendment by stating that the Upper Gunnison Basin Project's conditional water rights remain in full force and effect, except that the rights decreed to Ohio City Reservoir and Quartz Creek Canal. Further footnote 20 to paragraph 104 on page 56 of the April 6, 1998 Decree is hereby deleted. Also the Court recognizes the appropriateness of Arapahoe's comments in this context. Specifically the Court recognizes that conditional water rights for the Taylor River Canal and the East River Canal were initially cancelled by the Court. However they were later reinstated by the Court's supplemental findings and decree dated March 23, 1993 in Case 88-CW-183 subject to a stipulation with Arapahoe that the two

conditional water rights would be administered as junior to the Union Park Reservoir Project.

3. A primary focus of the Motion of Amendment of Findings and the subsequent responses and replies has to do with this Court's analysis and reference in the April 6, 1998 Decree to the effect that the BUREC has a "marketable pool" or "marketable yield" of 240,000 acre-feet of stored water for sale to water users throughout the state.

a. In their motion for amendment the Districts asked the Court to acknowledge that the size of the marketable pool has not been definitely quantified. In its response to the motion Crystal Creek expressed concern that the marketability of water from the Aspinall Unit and the quantity of any pool therefor were not issues litigated at trial and were not within the jurisdiction of this Court to determine in the context of Arapahoe's application in this case. Crystal Creek raised these points in an effort to clarify that any findings by the Court in this regard would not be preclusive in any subsequent litigation between the parties under the doctrine of collateral estoppel. Crystal Creek also wished to make it clear that issues in this regard had not been tried by consent and specifically asked that the Court, in its consideration of the Districts' Motion for Amendment, take care not to broaden the preclusive effect of the 1998 decree.

b. In response to these positions by the Districts and Crystal Creek, Arapahoe countered that in fact there has been reference throughout the litigation (since at least 1991) to the potential for a marketable pool of stored water in the Aspinall Unit and that the generally recognized quantity of said pool was 240,000 acre-feet. Further Arapahoe contends that in its Decree of April 6, 1998 the Court relied on the availability of the marketable pool for trans-basin use in holding that the subordination analyzed by the Court was available only to in-basin uses.

c. After studying the foregoing concerns expressed by the parties, the Court does not withdraw its basic finding that the BUREC has a separate "marketable pool" of water available for sale to water users beyond the water which is available through the BUREC's subordination policy. However the Court acknowledges that specifics with respect to the quantity of the marketable pool and conditions which the BUREC may be entitled to impose with respect to the sale of said water to any particular water user are dicta which the Court used to amplify its analysis. Therefore the Court does not consider its findings and conclusions in this regard to be preclusive in any subsequent litigation between the parties under the doctrine of collateral estoppel. This is true for the reasons advanced by Crystal Creek in its response filed June 4, 1998. Also as a matter of caution, the Court adopts as additional language Arapahoe's proposal that any orders in this case regarding federal facilities are limited to resolution of the pending application and will not prospectively bind the United States to operate federal projects in a particular way.

2

4. For the reasons stated in paragraph 4 of the Motion for Amendment of Findings, the Court finds and concludes that paragraph 67 of its April 6, 1998 Decree should be deleted entirely. Said paragraph was included in the mistaken belief that it supported the concept of compensatory storage and since it does not support that concept, it should be deleted.

WHEREFORE IT IS THE ORDER OF THE COURT the Motion of the Districts for Amendment of Findings filed May 19, 1998 is granted to the extent set out in the foregoing findings and conclusions, but in all other respects the Court's Decree of April 6, 1998, remain as originally ordered.

DONE BY THE COURT this 18TH day of June, 1998.

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Water Judge, Water Division No. 4

cc: Counsel for the Movants (McClow and Hallford)

All counsel and persons identified in the certificate of service attached to the motion for amendment of findings

**IRRIGATION & ELECTRICAL DISTRICTS  
ASSOCIATION OF ARIZONA**

R. GALE PEARCE  
PRESIDENT

R.D. JUSTICE  
VICE-PRESIDENT

SUITE 140  
340 E. PALM LANE  
PHOENIX, ARIZONA 85004-4603  
(602) 254-5908  
Fax (602) 257-9542  
E-mail: rslynch@rslynchaty.com

ELSTON GRUBAUGH  
SECRETARY-TREASURER  
  
ROBERT S. LYNCH  
ASSISTANT SECRETARY-TREASURER

E-MAILED ONLY: [smccall@uc.usbr.gov](mailto:smccall@uc.usbr.gov)

April 24, 2009

**COMMENT LETTER PWI09**

Mr. Steve McCall  
Bureau of Reclamation  
Western Colorado Area Office  
2764 Compass Drive, Suite 106  
Grand Junction, Colorado 81506

Re: Comments on the Draft Environmental Impact Statement on the Operations of the Aspinall Unit,  
74 Fed.Reg. 7260 (February 13, 2009)

Dear Mr. McCall:

The Irrigation & Electrical Districts Association of Arizona is a voluntary association of firm power customers that contract for hydropower from federal facilities on the Colorado River including the Colorado River Storage Project (CRSP). A copy of our membership is attached for ease of reference. CRSP power is a vital resource in Arizona and the operation of the Aspinall Unit in conjunction with the other facilities of CRSP is a matter of critical economic importance to our Members and Associate Members. IEDA is a member of the Colorado River Energy Distributors Association and fully supports the comments that CREDA has made on this subject.

We will be brief. The Draft Environmental Impact Statement is fatally flawed. It does not describe all "reasonable alternatives" as required by the National Environmental Policy Act and appropriate regulations and Bureau of Reclamation Instructions. **PWI09-01**

Specifically, 43 U.S.C. § 620f. requires the Secretary of the Interior to operate CRSP hydropower plants "in conjunction with other federal power plants, present and potential, so as to produce the greatest practicable amount of power and energy that can be sold at firm power and energy rates." That is a direct mandatory command to the Secretary. Unlike Glen Canyon Dam, Congress has not authorized the Secretary of the Interior to deviate from that command with regard to the Aspinall Units.

None of the alternatives, including the no action alternative, describe how the dams of the Aspinall Unit would be operated if the Aspinall Unit was being operated pursuant to 43 U.S.C. § 620f. Thus, the Secretary is being deprived of an analysis of operation of this system under the very statute to which he is obligated. Moreover, there is no analysis of impacts to endangered species under such a regimen nor analysis of mitigating factors that could be employed in conjunction with such an operating regimen. Additionally, there is no analysis of whether operating in this fashion would jeopardize the existence of any of the four endangered fish on which the Endangered Species Act analysis is focused.

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Mr. Steve McCall  
April 24, 2009  
Page 2

In sum, the Secretary is being deprived of the full range of reasonable alternatives required under NEPA to be presented to the decision maker in advance of a decision.

Since a necessary alternative is not included, the cumulative impacts analysis is also deficient. It is further deficient in its analysis of hydropower impacts specifically and on a cumulate basis. Nor does it provide the necessary analysis of the loss of hydropower requiring fossil fuel alternatives being utilized to meet electricity demand in the area served by the Unit and the CRSP.

We urge you to rewrite the Draft Environmental Impact Statement before attempting to move forward with a program that recommends to the Secretary the curtailment of valuable, clean, renewable hydropower.

Sincerely,

/s/

Robert S. Lynch  
Counsel and Assistant Secretary/Treasurer

RSL:psr  
Cc: Bill McDonald, Acting Commissioner  
Larry Walkoviak, Regional Director  
Leslie James, Executive Director, CREDA  
IEDA Presidents/Chairmen and Managers



**Water Consult**

Engineering and Planning Consultants

535 North Garfield Avenue • Loveland, CO 80537-5548

Phone: 970-667-8690 • FAX: 970-667-8692

E-Mail: h2orus@waterconsult.com

**COMMENT LETTER PW110**

May 22, 2009

via-email

Mr. Steve McCall  
U.S. Bureau of Reclamation  
2414 Compass Drive, #106  
Grand Junction, CO 81506

Subject: Comments on Aspinall Draft Environmental Impact Statement

Dear Steve,

My comments are provided on two aspects of the Aspinall DEIS:

- the Dolores River and impacts of the Dolores Project on federally listed endangered fish species in the Upper Colorado River Basin, and
- assessment of impacts of selenium on endangered fish species.

The comments on the Dolores River and Dolores Project are in this letter. The comments on selenium impacts are in this letter and the attached document entitled "Assessment of Selenium Impacts on Endangered Fish."

**Dolores River and Impacts of the Dolores Project**

The Dolores River and impacts of the Dolores Project on endangered fish species are addressed to in the Draft Environmental Impact Statement and in the attached Appendix B Biological Assessment. With respect to the impacts of the Dolores Project, I wish to offer the following comments:

1. In designating critical habitat for the four endangered fish species in the Upper Colorado River basin (Colorado pikeminnow, razorback sucker, humpback chub, and bonytail), the U.S. Fish and Wildlife Service did not designate critical habitat on the Dolores River.
2. The Upper Colorado River Endangered Fish Recovery Program was established in 1988 by agreement of the Secretary of the Interior, the governors of Colorado, Utah, and Wyoming, and Administrator Western Area Power Administration. Participants in the Program include four federal agencies (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Parks Service, Western Area Power Administration), the states of Colorado, Wyoming, and Utah, environmental organizations (represented by Western Resource Advocates and The

Nature Conservancy), Colorado River Energy Distributors Association, and Upper Basin water users.

Each year the participants in the Recovery Program update and unanimously adopt a "Recovery Action Plan" (RIPRAP) that identifies actions necessary to recover the four endangered fish species. It includes extensive activities in most river basins, including flow management, non-native species control, habitat development, research and monitoring, and stocking of endangered fishes. For the Dolores River, RIPRAP identifies two activities in support of recovery (attached) (Draft Recovery Action Plan, February 2009). These activities include

- Preparation of a McPhee Reservoir Management Plan by Colorado Division of Wildlife that was accepted by the Service on May 25, 1995 and is identified as complete.
- Survey native and non-native fish in the Dolores River (UDWR [Utah Division of Wildlife Resources] Funding Outside a Program). This activity was completed by UDWR in 2006.

No other activities in the Dolores River basin, such as flow management, habitat improvements, stocking, research and monitoring, or non-native fish control are deemed necessary by the Recovery Program to achieve recovery of endangered fish in the Upper Colorado River basin. As mentioned above, this Recovery Action Plan is approved by all participants in the Upper Colorado River Basin Recovery Program on an annual basis.

3. A recently completed draft report (Osmundson, 2008) on population status of the Colorado pikeminnow in the Colorado River between Palisade and Lake Powell states that the Colorado pikeminnow population may have quadrupled from approximately 200 to an estimated 900 adult fish from 1991-2005. (The final version of the report is expected to be published in July, 2009). The population recovery goal for adult Colorado pikeminnow in the Colorado River is 700 adult fish. Obviously, population recovery goals are being achieved and exceeded regardless of impacts of the Dolores Project, and without any contribution to the species recovery by the Dolores River basin.
4. With respect to ESA compliance for the Dolores Project, even without the Aspinall EIS, the Dolores Project depletions in place since the late 1980's are provided with ESA compliance by the Upper Colorado River Basin Recovery Program in accordance with the "Section 7 Consultation, Sufficient Progress and Historic Projects Agreement" adopted by the Recovery Program originally on October 15, 1993, with minor revisions on March 8, 2000.

In summary, impacts of the Dolores Project are limited to depletion impacts on the Colorado River. There are no direct impacts of the Dolores Project on endangered fish or endangered fish habitat, such as diversion structures. The Colorado population of Colorado pikeminnow exceeds the recovery goals. The Service did not designate any part of the Dolores River as critical habitat for the four endangered fish. All parties to the Recovery Program have agreed that no recovery actions on the Dolores River are needed to recover the endangered fish.

PW110-01

### Comments on Selenium Impacts

The attached paper entitled “Assessment of Selenium Impacts on Endangered Fish” is included as part of these comments on the DEIS. It provides the technical basis for the summary of comments provided below on selenium impacts discussed in the DEIS and Appendix B of the DEIS.

1. Current scientific information indicates that the exceedences of the 4.6 ug/l dissolved selenium criteria and state water quality standards for aquatic life do not indicate impacts on aquatic life, including endangered fish species in the Upper Colorado River basin and that dissolved concentrations of selenium in water do not measure the impact of selenium on fish.
2. The appropriate measures of impacts of selenium are selenium levels in ovaries and eggs of fish and corresponding deformities or lack of deformities in offspring.
3. The level of selenium in ovaries and eggs is likely related to the levels in fish tissue. However, this must be determined on a species-specific basis.
4. Currently, there is no adequate data to relate levels of selenium in ovaries/eggs to deformities of razorback sucker or Colorado pikeminnow to determine appropriate levels in tissue, ovaries/eggs, or water.
5. The quadrupling of the Colorado pikeminnow population in the Colorado River from 1991-2005, despite exceedences of the 4.6 ug/l selenium standard in the Gunnison and lower Colorado rivers, is further evidence that the standard is not adequate for assessing impacts on Colorado pikeminnow.
6. Available information does not allow for scientifically based assessment of the impacts of selenium on the Colorado pikeminnow or razorback sucker.
7. Upper Basin water users participating in the Recovery Program support the proposals in the DEIS and biological assessment that will continue to reduce selenium on a programmatic basis.
8. Additional research and data are needed to identify the levels of selenium in tissue, ovaries, and eggs of Colorado pikeminnow and razorback sucker that negatively impact the species. Development of this information is the responsibility of federal and state agencies responsible for establishing water quality criteria and standards. The Upper Colorado River Endangered Fish Recovery Program may have a role in supporting development of this information. Development of this information is not the responsibility of the Bureau of Reclamation.

If you have any questions regarding these comments, please contact me at your convenience.

Sincerely,

/s/ Tom Pitts

Tom Pitts  
Upper Basin Water Users Representative  
Upper Colorado Endangered Fish Recovery Program

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**Comments on  
Aspinall Unit Operations: Aspinall Unit  
Colorado River Storage Project Gunnison River, Colorado  
Draft Environmental Impact Statement, January 2009**

**Assessment of Selenium Impacts on Endangered Fish**

**Submitted By  
Tom Pitts\*  
Upper Basin Water Users Representative  
Upper Colorado River Endangered Fish Recovery Program**

**1.0 Summary**

These comments address the statements in the DEIS and Appendix B Biological Assessment regarding impacts of selenium on endangered fish species in the Gunnison and Colorado river basins. PWI10-02

For evaluating selenium levels and impacts or potential impacts on endangered fish, the Colorado state chronic ambient water quality standard of 4.6 ug/l dissolved is applied. EPA first published a water quality criterion for selenium in 1976. The current Colorado state standard of 4.6 ug/l resulted from publication of ambient water quality criteria for selenium by EPA in 1987, and an adjustment factor to convert total recoverable criteria to dissolved criteria published in the Federal Register in 1998. In 2004, EPA published a draft revised criteria document for selenium and recommended a tissue-based standard of 7.9 ug/g dw. Recognizing that the 7.9 ug/g dw criterion (chronic) was based on limited data from a single test, EPA conducted an additional test and published the results in 2008. These results indicated that the 7.9 ug/g criterion was too low. Subsequent scientific advancements have led EPA to determine that the criterion should be based on the levels of selenium in ovaries and eggs. Currently available scientific information clearly indicates that traditional methods for predicting toxicity on the basis of exposure to dissolved concentrations are not scientifically supportable. Selenium toxicity in aquatic systems is highly dependent upon site-specific factors, including food web structure and hydrology. Diet is the primary source for exposure that control chronic toxicity to fish.

EPA will likely publish a revised draft criteria document for selenium in late 2009. This document will propose selenium criteria based on selenium concentrations in ovaries and eggs of fish. Methodologies have been developed to define dose response relationships among selenium levels in ovaries, eggs, and deformities in hatched fish. At this time, it appears that approach will be used to establish selenium criteria for fish in the future.

Currently, adequate tissue data is not available to support tissue-based criteria for federally listed endangered fish in the Upper Colorado River basin or criteria based on selenium levels relating levels in ovaries/eggs to survival of larval fish. Previous toxicology tests indicate that Colorado pikeminnow and razorback sucker are not among the most sensitive species to selenium. Given

\* Tom Pitts is principal at Water Consult, Engineering and Planning Consultants, 535 N. Garfield Avenue, Loveland, CO, 80537, 970-667-8690, h2orus@waterconsult.com

the high variability among species, it is unlikely that future published national criteria based on the most sensitive species will be appropriate for application to Colorado pikeminnow and razorback sucker. Development of appropriate impact levels of selenium for the Colorado pikeminnow will likely require species-specific studies.

Selenium levels in the lower Gunnison tend to exceed the state standard of 4.6 ug/l dissolved. Available data indicates 85<sup>th</sup> percentile levels as high as 8 to 9 ug/l. The Colorado River from Parachute Creek to the state line is listed as impaired for aquatic life uses, i.e., the 4.6 ug/l standard is exceeded in this reach. Mussel plug data collected from Colorado squawfish in the area of Grand Junction indicated the levels as high as 17 ug/l dw in the mid 1990's.

The exceedence of the 4.6 ug/l dissolved selenium standard appears to have had little affect on Colorado pikeminnow populations in the Colorado River. The data collected between 1991 and 2005 show that the Colorado pikeminnow population of adults in the Colorado River may have quadrupled, i.e., increased from approximately 200 adults to almost 900 adults in this reach.

Population estimates have not been developed for razorback suckers. However, stocked razorback suckers in the Gunnison and Colorado rivers have spawned and produced larvae at a number of sites on the Colorado River between Palisade and Moab and on the Gunnison River between Delta and the Colorado River. There is some evidence that larval razorback sucker have survived to sub-adult status in the Gunnison River basin above Redlands Diversion.

Based on current available information, the following comments are offered:

1. Current scientific information indicates that the exceedences of the 4.6 ug/l dissolved selenium criterion and state water quality standard for aquatic life do not indicate impacts on aquatic life, including endangered fish species in the Upper Colorado River basin.
2. The appropriate measures of impacts of selenium are selenium levels in ovaries and eggs of fish and corresponding deformities or lack of deformities in offspring.
3. The level of selenium in ovaries and eggs is likely related to the levels in fish tissue. However, this must be determined on a species-specific basis.
4. Currently, there is no adequate data to relate levels of selenium in ovaries/eggs to deformities of razorback sucker or Colorado pikeminnow to determine appropriate levels in tissue, ovaries/eggs, or water.
5. The quadrupling of the Colorado pikeminnow population in the Colorado River from 1991-2005, despite exceedences of the 4.6 ug/l selenium standard in the lower Colorado and Gunnison rivers, is further evidence that the standard is not adequate for assessing impacts on Colorado pikeminnow.
6. Available information does not allow for scientifically based assessment of the impacts of selenium on the Colorado pikeminnow or razorback sucker.
7. Upper Basin water users participating in the Recovery Program support the proposals in the DEIS and biological assessment that will continue to reduce selenium on a programmatic basis.

8. Additional research and data are needed to identify the levels of selenium in tissue, ovaries, and eggs of Colorado pikeminnow and razorback sucker that negatively impact the species. Development of this information is the responsibility of federal and state agencies responsible for establishing water quality criteria and standards. The Upper Colorado River Endangered Fish Recovery Program may have a role in supporting development of this information. It is not the responsibility of the Bureau of Reclamation.

## 2.0 Water Quality Criteria for Selenium

This section describes the development of national criteria for selenium and current approaches to defining the national criteria.

### 2.1 1987 Ambient Water Quality Criteria for Selenium

In 1987, EPA published ambient water quality criteria for Selenium (U.S. Environmental and Protection Agency, 1987). The recommended the chronic criterion (criterion continuous concentration) for freshwater fish was 5 ug/l total recoverable selenium in water. This was based on field observations of the effects of selenium in Belews Lake, North Carolina. Other observations indicated an effect of selenium at 10 ug/l.

EPA stated as the basis for this recommendation that *“these studies strongly indicate that the affects observed by Lemly (1985) were indeed caused by selenium and that the 10 ug/l in Belews Lake caused the effects observed there. The concentration of selenium in the unaffected upper arm of Belews Lake was near or below the detection limit of 5 ug/l...Criterion continuous concentration (CCC) should be between 10 ug/l and the concentration in the unaffected portion of Belews Lake, which is near or below 5 ug/l. Therefore, the CCC will be set at 5 ug/l.”* The final criterion was established based on reports of conditions at Belews Lake, rather than laboratory toxicity studies.

In 1998, the EPA published a compilation of its national recommended water quality criteria for 157 pollutants that includes some minor revisions (Federal Register 63FR57548-57558, December 7, 1998). Corrections to the initial list were subsequently published in the Federal Register on December 10, 1998 and April 22, 1999. The 1998 compilation provided for a correction factor to convert total recoverable values to dissolve for selenium. This resulted in the calculation of 4.6 ug/l dissolved as the chronic fresh water quality criterion for selenium. The dissolved criterion had been adopted as the chronic standard for aquatic life by Colorado (Colorado Department of Public Health and Environment, 2008) and applied to the Gunnison River and Colorado River. The 4.6 ug/l dissolved ambient water quality standard was used for evaluating alternatives in the Aspinall DEIS and biological assessment.

### 2.2 2004 Draft EPA Criteria Document

In the late 1990's, EPA initiated the process of revising the aquatic life water quality criteria for selenium. EPA published a draft update of the aquatic life ambient water quality criteria in 2004 (U.S. Environmental Protection Agency, 2004). This update has not been finalized.

In the 2004 draft criteria document, the EPA concluded that water based aquatic life criteria are not appropriate for selenium. Studies have shown that diet is the primary route of exposure that controls chronic toxicity to fish, the group considered to be the most sensitive to chronic

selenium exposure. Chronic tests exposing test organisms to selenium only through water and which measured selenium in the tissue of the test species have produced questionably low chronic values based on tissue concentration. Diet controls chronic toxicity in the environment. Water-only exposures require unrealistic aqueous solutions in order to enlist a chronic tissue response.

In developing the 2004 draft criteria document, only studies in which test organisms were exposed to selenium in their diet alone or in diet and water were considered in the derivation of the tissue-based criteria. Whole body tissue concentration of selenium on a dry weight basis for species eliciting the chronic response was selected as the medium on which to base the chronic criterion value. A tissue-based criterion was considered as having the positive attributes of integrating many site specific factors, such as chemical speciation and rates of transformation, large variations in temporal concentrations in water, types of organisms constituting the food chain, and rates of exchange between water sediment and organisms.

In developing the 2004 tissue-based chronic criterion, EPA applied stringent criteria to the data that was applied in the analysis for deviation of the criteria. Acceptable freshwater chronic toxicity data were available for an aquatic invertebrate (freshwater rotifer), eight different fish species and mix of fish species from the family Centrarchidae for a total of 21 distinct studies. Collectively, only these data were considered for derivation of the final tissue residue criterion for selenium. Data from toxicity tests on two Colorado native species, flannelmouth sucker and razorback sucker, were considered acceptable by EPA.

**2.2.1 Colorado River Native Fish:** Among the studies included in the 2004 draft criteria document are two on razorback sucker and one on flannelmouth sucker.

**Flannelmouth sucker:** Beyers and Sodergren (2001a) exposed flannelmouth sucker larvae to a range of aqueous selenate concentrations, i.e., (<1, 25.4, 50.6, 98.9, and 190.6 µg/L) and respectively fed them a range of selenium in their diet (rotifers containing <0.702, 1.35, 2.02, 4.63, and 8.24 µg/g dw). There were no survival or growth effects observed after the 28 day exposure. The chronic value based on the concentration of selenium measured in the larvae exposed to the highest test concentration was > (greater than) 10.2 µg Se/g dw.

**Razorback sucker:** Two laboratory exposure studies on the endangered razorback sucker were included in the review. In the first study, Beyers and Sodergren (2001a) exposed larval razorback suckers to the same aqueous and diet concentrations as described above for the flannelmouth sucker concentrations (<1, 25.4, 50.6, 98.9, and 190.6 µg/L) and respectively fed them a range of selenium in their diet (rotifers containing <0.702, 1.35, 2.02, 4.63, and 8.24 µg/g dw). Similar to the results found for the flannelmouth sucker, survival and growth of the razorback sucker larvae were not reduced after the 28 day exposure. The chronic value for this study based on selenium measured in the larvae at the end of the test is > 12.9 µg Se/g dw.

In a second study, Beyers and Sodergren (2001b) exposed larval razorback suckers to a control water and three different Colorado River site waters containing varying concentrations of selenium. The investigation was designed to include the typical range of dissolved constituents that currently occurs in fish habitats in the Grand Junction area. Localities ranged from presumed uncontaminated De Beque, to moderately contaminated Orchard Mesa, to highly contaminated North Pond at the Walter Walker State Wildlife Area. An additional test water was North Pond water diluted 50% with control water. This dilution provided additional

moderately contaminated test water, and also simulated potential results if North Pond contaminant concentrations were reduced by 50%. Two treatments were tested within each water type, fish fed rotifers cultured in the same water type (site diet) and fish fed rotifers cultured in control water. There were no reductions in survival or growth in fish exposed to both the site water and site diet compared to fish exposed to control water and control diet. There were, however, reductions in growth in fish exposed to site water/site food compared to the same site water and control food. The authors did not attribute the effect on larval growth by the diet to selenium and cited several lines of evidence, including: (1) there was not a dose-response relationship in the concentration of selenium in the food (rotifers) and growth, nor in the concentration of selenium in the fish larvae and growth across the three water types; and (2) the site water type, identified as De Beque, showed a significant reduction in the growth of fish exposed to site water/site food relative to site water/control food, but contained levels of selenium in the water ( $< 1 \mu\text{g/L}$ ) and food ( $2.10 \mu\text{g/g dw}$ ) typically lower than those that have been found to elicit effects. The chronic value for this study is  $> 42 \mu\text{g Se/g dw}$  based on the whole body concentration of selenium in the larval razorback suckers exposed to North Pond site water.

**2.2.2 Basis for Selenium Chronic Fish Criterion:** The final chronic value for selenium, i.e., recommended chronic criterion, is based toxicity to the most sensitive species. Because the flannelmouth sucker and razorback sucker were not among the most sensitive species tested, toxicity data on the species did not factor into establishment of the recommended tissue-based criteria in the 2004 EPA draft document.

As a group, bluegill were the most sensitive species. The group mean chronic value for bluegill was  $9.500 \mu\text{g/g dw}$  whole body, the geometric mean of chronic values of three laboratory studies.

The 2004 data included data from Lemly (1993) indicating that over-wintering fish may be more susceptible to the effects of water borne dietary selenium due to increased sensitivity at low temperature. Lemly reported that the chronic value for juvenile bluegill sunfish exposed to water borne and dietary selenium at  $4^\circ\text{C}$  was less than  $7.9 \mu\text{g/g dw}$ . Because this was less than the  $9.5 \mu\text{g/g dw}$  group mean chronic value, the single Lemly study became the basis for the recommended final chronic value (FCV) for selenium in the 2004 draft report. While the draft report recognized that there were some uncertainties regarding results of the single Lemly study, the final chronic value recommended in 2004 draft document for selenium for tissue was  $7.91 \mu\text{g/g dw}$ . The recommendation was intended to be protective of aquatic organisms across the United States, given that it would protect the most sensitive species under the most deleterious conditions.

The 2004 EPA document recognized that there may be site specific variations:

*"There may be aquatic communities whose fish assemblage may contain species with different sensitivities to selenium compared to those listed in Table 4. Furthermore, even with Table 4 bluegill data, there is range of reported tissue NOAEC's from various sites. Consequently, results from appropriate site specific studies could be used to modify the criteria."*

### 2.3 2008 EPA Bluegill Report

In 2008, EPA published the results of a toxicity study to enhance data from the single study by Lemly that was the basis for the 2004 recommended chronic tissue-based selenium criterion (U.S. Environmental Protection Agency, 2008). The goal of the 182-day exposure of juvenile bluegill sunfish was to determine tissue based effect levels for selenium exposure over a simulated winter season at two temperature regimes, 20 to 4°C and 20 to 9°C. The following summarizes the findings of this effort:

- *Juvenile bluegill sunfish appear to be more sensitive to selenium in waters reaching 4-5°C than 9°C. The EC<sub>20</sub> and EC<sub>10</sub> estimates for the exposure in which temperature decreased from 20 to near 4°C were 10.16 and 9.56 ug/g dw, respectively, while the EC<sub>20</sub> and EC<sub>10</sub> estimates for the exposure that began at 20°C and systematically lowered to 9°C were 14.02 and 13.29 ug/g dw, respectively.*
- *The accumulation of selenium in the juvenile bluegill was affected by the form of selenium in the diet of the fish. Under a similar temperature regime and exposure period, bluegill receiving an artificial diet spiked with seleno-L-methionine (ES2 treatments 5A and 5B) accumulated 2.5 times the selenium accumulated by bluegill receiving a natural diet of selenium accumulated in *L. variegatus* (ES1 Treatment 3).*
- *The accumulation of selenium in the juvenile bluegill was affected by temperature. Fish exposed to dietary selenium via *L. variegatus* accumulated up to 39% more selenium in the 20 to 9°C regime than in the 20 to 4°C regime.*
- *The accumulation characteristics of seleno-L-methionine in juvenile bluegill in the current study were similar to that observed in Lemly's study. The toxicity of selenium to juvenile bluegill was approximately 1.9 times less in the current study than that observed in Lemly's study (Lemly, 1993).*
- *The juvenile bluegill in the current study did not decrease in body condition factor and lipid content as they did in the Lemly study.*

If the results of this study were applied to define a chronic tissue criterion for the most sensitive species, it would likely be in the range of 9.5 to 10.2 ug/g dw.

### 2.4 Current science of selenium toxicity

On February 22-28, 2009, the Society of Environmental Toxicology and Chemistry (SETAC) held a workshop on "Ecological Assessment of Selenium in the Aquatic Environment." SETAC published a booklet summarizing the workshop (Chapman, et al, 2009). The key findings relevant to aquatic toxicity were identified in four categories as follows:

#### ***Problem Formulation***

- *Selenium (Se) is a growing problem of global concern.*
- *Diet is the primary pathway of Se exposure for both invertebrates and vertebrates.*
- *Traditional methods for predicting toxicity on the basis of exposure to dissolved concentrations do not work for Se because the behavior and toxicity of Se in aquatic*

systems are highly dependent upon site-specific factors, including food web structure and hydrology.

- Se toxicity is primarily manifested as reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity in egg-laying vertebrates.

#### **Environmental Partitioning, Bioaccumulation, and Trophic Transfer**

- Understanding Se speciation is critical to understanding its mobility, transformation, partitioning in the environment, and potential risk to aquatic ecosystems.
- Se uptake is facilitated across most biological membranes (a nonpassive, carrier-mediated process), making its partitioning unique among metalloid contaminants.
- The single largest step in the bioaccumulation of Se occurs at the base of food webs, characterized by an "enrichment function"; thermodynamic or equilibrium-based principles are not appropriate for predicting Se bioaccumulation at the base of food webs.
- Se bioaccumulation by primary producers and predators varies widely among species, based on both ecology and physiology (biodynamics); uptake by individual species and in steps of the food web can be described by a trophic transfer function.

#### **Toxic Effects**

- A key aspect of Se toxicity is the narrow range between dietary essentiality and toxicity.
- Differences in species sensitivities to Se may be related to differences in reproductive physiology, dynamics of Se transfer from diet or body tissues to eggs, and/or differences in capacity to metabolize organic Se to more reactive oxidized species.
- Protection of top predators may not guarantee protection of all biota situated lower in the food web.
- Aquatic-dependent mammals do not appear to be as sensitive as fish or birds to dietary organic Se exposure.
- The most sensitive toxicity endpoint in birds is embryo mortality.
- The most sensitive toxicity endpoints in fish larvae are teratogenic deformities such as skeletal, craniofacial, and fin deformities, and various forms of edema.
- Embryo mortality and severe development abnormalities can result in impaired recruitment of individuals into populations.

#### **Risk Assessment**

- Population-level effects from Se in natural ecosystems are difficult to detect. This difficulty reflects differences in species sensitivity as well as food web complexities and demographics where population-level effects are suspected. Se contamination of Belews Lake and of Hyco and Kesterson Reservoirs (USA) resulted in whole-ecosystem exposures that had significant adverse population-level impacts. Few such widespread impacts on populations have been definitively documented in other ecosystems; however, population-level effects have been suspected at several other sites, including San Francisco Bay (USA) and Lake Macquarie (Australia).
- Risk assessment starts with reviewing available data on Se concentrations in various media, but more certainty in assessment of potential adverse effects is realized when Se measurements are made in reproductive tissue.

- *A single, universal, dissolved water quality value is inappropriate for predicting toxicity. The dissolved Se concentration benchmark that is necessary to protect one site may be either insufficiently protective or unnecessarily protective at another site.*
- *There is consensus that fish and bird eggs are the critical media in terms of assessing or predicting Se toxicity at a given location, and measured concentrations in these tissues are most strongly linked to adverse effects.*
- *The vulnerability of a species is the product of its sensitivity to Se in its eggs, its propensity to transfer Se from its body into its eggs, and its propensity to accumulate Se from its environment, as affected by its diet choices and intake rates, and by site-specific factors controlling the transfer of Se into and within the food web.*
- *For reliable prediction of effect thresholds across a range of sites, numeric benchmarks for egg concentrations provide the greatest certainty. The more distantly connected a possible measurement medium is to the egg concentrations, the less certainty that the associated numeric benchmark will be appropriate across sites.*
- *For site-specific assessment of Se risks to fish, the field collection of ripe females or newly laid embryos for laboratory examination of larval effects is a reliable indicator of Se risks when the effect measure is related to the egg Se concentration.*
- *Se requires site-specific risk assessments, including adequate quality assurance and quality control of chemical and biological analyses, to a much greater extent than many other contaminants.*

#### **2.6 Current status of EPA selenium criteria development**

EPA is in the process of developing another draft of the selenium criteria document. This draft is expected to be published in August/September 2009 (Delos, 2009). The new criterion will likely be related to selenium concentration in fish eggs and ovaries, given the close relationship between selenium levels in the eggs and ovaries and impairments on reproductive capabilities. The criteria document will recognize that ratios of selenium in tissue to selenium levels in eggs and ovaries may vary among species.

A methodology is emerging to develop species specific criteria based on approximately the following procedures (Delos, 2009):

1. Eggs are collected from gravid females.
2. Selenium levels in the eggs are determined.
3. The eggs are hatched and the percent deformities are measured and compared to the selenium concentrations.
4. By comparing various concentrations in species' eggs with percent deformities, an acceptable level of selenium may be determined, i.e., a dose response relationship and a tissue/ovary selenium level determination can be made.

A detailed procedure has been developed (Janz and Muscatello, 2008).

#### **3.0 Selenium levels in the Gunnison River and Colorado River**

The Gunnison River from the Uncompahgre to the Colorado River is listed as non-supporting for aquatic life goal 1 due to selenium (Colorado Department of Public Health and Environment, 2008). Several Gunnison River tributary segments are also listed as non-supporting due to selenium for multiple uses (Colorado Department of Public Health and Environment, 2008). The

Water Quality Control Commission has established a temporary modification of the chronic standard (4.6 ug/l) at 8.4 ug/l from the confluence of the Uncompahgre to the Colorado River through 2011 (Colorado Department of Public Health and Environment, 2007). The temporary modification reflects ambient levels of selenium in this segment.

The Colorado River from Parachute Creek to the state line is listed as non-supporting for aquatic life due to selenium and iron (Colorado Department of Public Health and Environment, 2008).

The draft environmental impact statement (U.S. Bureau of Reclamation, 2009) indicates that under the no action alternative, the threshold of 4.6 ug/l is exceeded at the Whitewater gage on average of 274 days/year for the period of 1975-2005. The preferred alternative would increase this exceedence to an average of 281 days/year (Table 3.38, Page 3-35). The DEIS reports that the 85<sup>th</sup> percentile concentrations of selenium exceeds for state established numeric standard (4.6 ug/l) of selenium.

Table 3.35-Lower Gunnison Water Quality Data shows that the 85<sup>th</sup> percentile value of dissolved selenium at 5.5 ug/l, exceeding the state dissolved standard of 4.5 ug/l, based on USGS data for the Gunnison River delta.

For the Gunnison River near Grand Junction, USGS Station (09152500), the 85<sup>th</sup> percentile dissolved selenium was 9 ug/l, compared to the state standard of 4.5 ug/l, which have been temporarily modified to 8 ug/l given ambient levels in 2002.

**Colorado pikeminnow tissue data re: selenium:** Data was collected from Colorado pikeminnow in 1994, 1995, and 1996 in the Colorado River near Grand Junction (Osmundson, et al, 2000). Selenium concentrations in mussel plugs was compared to recommended toxic threshold guideline concentration of 8 ug/g dw and mussel tissue for freshwater fish (Lemly, 19996). Mussel plugs collected from 16 Colorado pikeminnow captured at Walter Walker State Wildlife Area contained a mean selenium concentration of 17 ug/g dw, collected in 1994. In 1995, 52 mussel plugs were taken from Colorado pikeminnow at WWSWA. Eleven of these plugs were from fish previously sampled in 1994. Selenium concentrations in nine of the eleven recaptured fish were significantly lower in 1995 than in 1994. This was attributed in part to higher instream flows in 1995 and lower water selenium concentrations in the Colorado River in the Grand Valley. In 1996, most of the plugs were taken from 35 Colorado squawfish captured WWSWA, and no difference in mean selenium concentration detected from those sampled in 1995. Colorado River flows during 1996 were intermediate to those measured in 1994 and 1995.

#### 4.0 Status of Colorado Pikeminnow Populations in the Colorado River

The Upper Colorado River Endangered Fish Recovery Program funded studies from 1991 through 2005 to assess population trends of the Colorado pikeminnow (Osmundson and White, 2009). This included three multi-year data collection efforts in 1991-1994, 1998-2000, and 2003-2005. The primary objectives included developing estimates of population abundance and survival rates in assessing trends and recruitment. According to the draft report:

*“Although no abundance estimate was available for the lower reach in 1991, the frequency histogram of fish captured there suggested there were very few fish greater than or equal to 450 mm TL [total length] present; hence, the river-wide number of fish this size may not have been much greater than the estimate provided for the upper reach*

*alone (i.e., around 200 individuals). Given that the 2005, river-wide, abundance estimate of fish greater than or equal to 450 mm TL was over 800, the subpopulation of this fish might have quadrupled since 1991.”*

#### **5.0 Razorback Sucker in the Gunnison and Colorado River**

Due to the low populations of razorback sucker, no efforts have been made to extensively monitor those populations or develop population estimates. Studies have been conducted to determine if the species is spawning in the Colorado and Gunnison rivers.

#### **5.1 Spawning in the Colorado River and Gunnison River**

The Upper Colorado River Endangered Fish Recovery Program sponsored a study of razorback sucker spawning in the Gunnison and Colorado Rivers (Osmundson and Seal, 2009). The objectives were 1) determine if razorback sucker stocked in the Gunnison and Colorado rivers spawned successfully, and 2) determine larvae distribution and perhaps spawning locations. The Gunnison River was sampled from 2002-2007 between Delta and Grand Junction. The Colorado River was sampled from 2004 to 2007 from Palisade to Westwater. Sampling was conducted for approximately seven to eight weeks after the suspected spring spawning season.

Larval razorback sucker or suspected razorback sucker were captured every year from 2002-2007 between Delta and Grand Junction at several locations throughout the Delta-Grand Junction reach.

Larval razorback sucker were captured in the Colorado River at numerous locations between Grand Junction and Westwater Canyon between 2004 and 2007 and at two locations between Palisade and Grand Junction in 2007. In addition, in 2005 and 2008, running ripe female razorback suckers were captured between Loma and Moab.

The conclusions presented included:

- *Stocked razorback suckers in the Gunnison and Colorado rivers spawned and produced larvae.*
- *Spawning likely occurs at a number of sites.*
- *Larvae were widely distributed.*
- *Absolute numbers of larvae collected were relatively small.*
- *Number of breeding-age fish should continue to increase.*
- *No real current effort underway to determine whether larvae are surviving to age-one or recruiting to the adult phase.*
- *Bottomland management needs to take into account multiple spawning locations.*

#### **5.2 Indication of recruitment in the Gunnison River**

In 2006, two razorback suckers were found impinged on facilities upstream of the Redlands diversion structure. One fish was 217 mm TL (8.5 inches), the other which was about 150 mm TL (5.9 inches). Prior to 2006, there had been some stocking of adult razorbacks in the Gunnison, which was suspended pending completion of the fish screen at the Redlands diversion. In addition, the wetlands at the Butch Craig bottomlands site below the Uncompahgre

had been stocked with larval fish. The two fish were very likely either naturally reproduced in the Gunnison above Redlands or were larval fish that escaped from the wetlands stocking site. In either case, the two fish provide evidence that larval razorback sucker very likely survived to sub-adult status in the Gunnison River (Muth, 2009).

#### References

Beyers, D.W. and Sodergren, C. 2001a. Evaluation of interspecific sensitivity to selenium exposure: Larval razorback sucker versus flannelmouth sucker. Larval Fish Laboratory, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, Colorado.

Beyers, D.W. and Sodergren, C. 2001b. Assessment of exposure of larval razorback sucker to selenium in natural waters and evaluation of laboratory-based predictions. Larval Fish Laboratory, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, Colorado.

Chapman PM, Adams W.J., Brooks M.L., Delos C.G., Luoma S.N., Maher W.A., Ohlendorf H.M., Presser T.S., Shaw D.P. 2009. Ecological assessment of selenium in the aquatic environment: Summary of a SETAC Pellston Workshop. Pensacola FL (USA): Society of Environmental Toxicology and Chemistry (SETAC).

Colorado Department of Public Health and Environment, Water Quality Control Commission. 2007. Regulation No. 35 Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins (5 CCR 1002-35)

Colorado Department of Public Health and Environment, Water Quality Control Commission. 2008. Regulation No. 31 The Basic Standards and Methodologies for Surface Water (5 CCR 002-31)

Colorado Department of Public Health and Environment, Water Quality Control Division. 2008. Status of Water Quality in Colorado-2008.

GEI Consultants, Golder Associates, Parametrix, University of Saskatchewan. 2008. Selenium Tissue Thresholds: Tissue Selection Criteria, Threshold Development Endpoints, and Potential to Predict Population or Community Effects in the Field. North America Metals Council – Selenium Working Group, Washington, D.C.

Janz, David and Muscatello, Jorgelina. 2008. Standard Operating Procedure for Evaluating Selenium-Induced Deformities in Early Life Stages of Freshwater Fish. Toxicology Centre, University of Saskatchewan, Saskatoon, SK.

Lemly, A.D. 1993. Metabolic stress during winter increases the toxicity of selenium to fish. *Aquat. Toxicol.* (Amsterdam) 27(1-2):133-158.

Lemly, A.D. 1996. Selenium in aquatic organisms. In: Beyer, W.N., Heintz, G.H., Redmon-Norwood, A. (eds). *Environmental contaminants in wildlife: interpreting tissue concentrations*. Lewis Publishers, NY, pp 427-445.

McIntyre, Dennis O., Pacheco, Manoel A.; Garton, Mailee W.; Wallschläger, Dirk; Delos, Charles G. Technical Report: Effect of Selenium on Juvenile Bluegill Sunfish at Reduced Temperature. 2008. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Muth, Robert. Director, Upper Colorado River Endangered Fish Recovery Program. 2009. Personal Communication.

Osmundson, B. C., T. W. May, and D. B. Osmundson. 2000. Selenium concentrations in the Colorado pikeminnow (*Ptychocheilus lucius*): relationship with flows in the upper Colorado River. *Archives of Environmental Contamination and Toxicology* 38:479-485.

Osmundson, D. B., Seal, Sean C. 2009. Successful Spawning by Stocked Razorback Suckers in the Gunnison and Colorado Rivers as Evidenced by Larval Fish Collections, 2002-2007. Power Point presented at Researchers Meeting, Upper Colorado and San Juan River Basin Recovery Programs, Grand Junction, Colorado.

U.S. Department of the Interior, Bureau of Reclamation. 2008. Draft Environmental Impact Statement, Aspinall Unit Operations: Aspinall Unit—Colorado River Storage Project Gunnison River, Colorado. Grand Junction, Colorado.

U.S. Environmental Protection Agency. 1987. Ambient Water Quality Criteria for Selenium-1987. EPA Publication 440/5-87-008; Office of Research and Development Duluth, Minnesota; Narragansett, Rhode Island.

U.S. Environmental Protection Agency. 2004. Draft Aquatic Life Water Quality Criteria for Selenium – 2004. Office of Water, EPA-822-D-04-001.

**COMMENT LETTER ENV01**

**From:** "Bart Miller" <bmill@westernresources.org>  
**To:** "Steve McCall" <SMCCALL@uc.usbr.gov>  
**Date:** 4/24/2009 5:08:46 PM  
**Subject:** WRA-TNC comments on Aspinall DEIS

Steve:

Please accept these comments on the Aspinall Re-Operations Draft EIS, submitted jointly by Western Resource Advocates and The Nature Conservancy.

We also include 4 attachments (documents referenced in our comments that might not be readily available to you).

Please do not hesitate to contact us with any questions.

Sincerely,

Bart

**CC:** "Robert Wigington" <rwigington@TNC.ORG>, "Dan Luecke" <luecke5@comcast.net>, "Tom Iseman" <tiseman@TNC.ORG>

Western Resource Advocates (WRA) and The Nature Conservancy (TNC)— members of the Upper Colorado River Endangered Fish Recovery Program (Recovery Program)— appreciate the opportunity to provide these comments on the Draft Environmental Impact Statement (DEIS) related to re-operating the Aspinall Unit to benefit endangered fish.

Based on analysis contained in the DEIS and other relevant data, the U.S. Bureau of Reclamation (BOR or Reclamation) should select Alternative C. Alternative C is the best of the listed alternatives for assisting recovery of the four federally listed endangered fish. In 2003, after many years of effort and review by members of the Recovery Program, the U.S. Fish & Wildlife Service (FWS) released its FLOW RECOMMENDATIONS TO BENEFIT ENDANGERED FISHES IN THE COLORADO AND GUNNISON RIVERS (flow recommendations). The FWS's flow recommendations—including but not limited to the oft-cited "Flow Table" found therein (see page 4.13, Table 4.5)—is the key metric for evaluation of the adequacy of the alternatives in the DEIS. Alternative C does the best to meet the key elements of the flow recommendations.

ENV01-01

Alternatives A and D are inadequate, as they fail to reach even the lower end of the ranges in the Flow Table and fail to provide historic variability among years. They similarly fail to meet the many other criteria in the 2003 FWS flow recommendations. Alternative B would meet only the lower end of the ranges in the Flow Table. In addition, the No Action Alternative lacks some essential elements (including the senior water right of the Black Canyon of the Gunnison National Park), with the result that it skews the impacts analysis when comparing No Action to other alternatives.

Many elements of the DEIS require further analysis, including the specific issues below (discussed further in these comments at the pages indicated):

1. Purpose and Need (page 2)
2. Alternatives Analysis (page 3)
3. Target Flows (page 4)
4. Aspinall Operations (page 5)
5. Biological Opinion and related issues (page 6)
6. Black Canyon water right (page 9)
7. Yield of Aspinall Unit (page 11)
8. Flooding (page 12)
9. Drought (page 12)
10. Hydropower impacts (page 13)
11. Trout (page 14)
12. Baseflows at Redlands (page 15)
13. Adaptive Management (page 16)
14. Selenium (page 16)

**1. Purpose and Need** (DEIS, 1.1.4, page 1-2)

The Aspinall DEIS states:

*“The purpose of modifying the operations of the Aspinall Unit is to provide release of water at times, quantities, and duration necessary to avoid jeopardy to endangered fish species and adverse modification of their designated critical habitat in the lower Gunnison River while maintaining the congressionally authorized purposes of the Aspinall Unit.”* (DEIS, page 1-2) (emphasis added)

ENV01-02

This statement is remarkably out of keeping with the statement of purpose in the Final EIS for Flaming Gorge:

*“The purpose of the proposed action is to operate Flaming Gorge Dam to protect and assist in recovery of the populations and designated critical habitat of the four endangered fishes, while maintaining all authorized purposes of the Flaming Gorge Unit of the CRSP, particularly those related to the development of water resources in accordance with the Colorado River Compact.”* (Operation of Flaming Gorge Dam Final Environmental Impact Statement Executive Summary (September 2005), page S-2) (emphasis added)

At several points over the period of time the Aspinall DEIS has been in process we have argued that mere avoidance of jeopardy is not enough. Like all federal agencies, Reclamation has the responsibility under the Endangered Species Act (ESA) not only to avoid jeopardy but to recover listed species. This responsibility is even more acute in this case due to the fact that the re-operation of the Aspinall Unit is being done inside the Recovery Program, a program whose underpinning is based, in part, on the agreement that federal facilities will play an important role in recovery.

The Aspinall Unit, like Flaming Gorge, is part of Colorado River Storage Project (CRSP) and shares both its purposes and its responsibilities. Nonetheless, the Aspinall DEIS describes these responsibilities in a very different and internally inconsistent way. It states:

*“The Flow Recommendations for the Gunnison River, in concert with other program actions, are intended to avoid jeopardy and assist in recovery. By implementing actions that assist in meeting the Flow Recommendations, Reclamation is taking the steps necessary to avoid jeopardizing the continued existence of the endangered fish by operation of the Aspinall Unit and to voluntarily and cooperatively take steps to facilitate recovery of the fish.”* (DEIS, page 1-3)

Here Reclamation is claiming that the re-operation of Aspinall will avoid jeopardy (and no more), but that Reclamation (not Aspinall) is “...to voluntarily and cooperatively take steps to facilitate recovery of the fish.” These other steps are unspecified, but the statement strongly implies that this major federal facility (Aspinall) will have a role limited to the avoidance of jeopardy.

This implication that Aspinall has neither a role in restoration nor a responsibility for improving and enhancing conditions for fish and wildlife is out of keeping with the ESA, the Recovery Program, CRSP authorizing legislation, and other federal law. The DEIS statement that “[i]t does not follow that CRSP generally authorizes the release of water for fish and wildlife purposes” (DEIS, page 1-4) also is incorrect.<sup>1</sup> ENV01-03

There is no conflict between the ESA and the Recovery Program, on the one hand, and CRSP on the other, i.e., between implementing the flow recommendation and meeting the other project purposes of Aspinall. Relatedly, the DEIS is seriously flawed in that it misstates the appropriate purpose and need and fails to specifically and consistently note that meeting flows for endangered fish is among Aspinall Unit project purposes. In addition, the no jeopardy purpose leads Reclamation to select a “habitat maintenance” set of flow targets rather than “habitat improvement” targets as the basis for making operational changes to the system, where the latter standard is appropriate to recover the endangered fish.

Moreover, since meeting the flow recommendations is not a subordinate purpose and there is agency discretion in how to meet other Aspinall Unit purposes, the needs of ESA-listed species are paramount and should not be “balanced” against other purposes. Tennessee Valley Authority v. Hill, 437 U.S. 153, 185 (1978) (endangered species legislation reveals a conscious decision by Congress to give endangered species priority over the “primary missions” of federal agencies); Carson-Truckee Water Conservancy District v. Clark, 741 F.2d 257, 262 (9<sup>th</sup> Cir. 1984) (the ESA supports the Secretary in giving priority to endangered fish until such time as they no longer need ESA protection). In preparing the FEIS Reclamation should therefore clarify that Aspinall operations needed to meet the flow recommendations are not “balanced” against discretionary operations, including hydropower production. Hydropower production cannot override operations for the purpose of meeting the flow recommendations. ENV01-04

## 2. Alternatives B and C (DEIS, Sections 2.6 & 2.7, pages 2-24 to 2-26)

The DEIS states

<sup>1</sup> See CRSPA, 43 U.S.C. § 620g (Secretary is to maintain CRSP projects to “mitigate the losses of, and improve conditions for, the propagation of fish and wildlife”); Colorado River Basin Project Act, 43 U.S.C. § 1501 (amending CRSP purposes to include “improving conditions for fish and wildlife”); Federal Water Project Recreation Act, 16 U.S.C. § 4601-12 (requiring Bureau to give full consideration to ways to enhance fish and wildlife); Fish and Wildlife Coordination Act, 16 U.S.C. § 661 (where legislative history makes clear that wildlife conservation shall receive “equal consideration” with other water project features, see S. Rep. No. 1981, 85<sup>th</sup> Cong., 2d Sess. 5 (1958)).

*“Alternative B [Fish Peak with Duration] is the preferred alternative and environmentally preferred Alternative because it avoids jeopardy to downstream endangered fish while still meeting Aspinall Unit authorized purposes. It also protects multiple resources, such as agriculture, recreation, and sport fisheries, which the public has cited as important concerns.”* (DEIS, page 2-24) (emphasis added)

To make such a statement Reclamation has had to contrive a definition of “environmentally preferred” and, at the same time, ignore its own data (see “Critical Habitat Avg. Annual Days” section of Table 2.7 1, page 2-25). Within this portion of the table, the DEIS reports the performance of the various alternatives on meeting the target flows. It is clear from the table that Alternative C—not Alternative B—is superior. Alternative B is geared to meet the lower bound of duration, the habitat maintenance level, for target flows (DEIS, Table 2.3 2, page 2-8). With this structure, it is, almost by definition, ineligible for the label of “Environmentally Preferred Alternative.”

ENV01-05

While there are a host of environmental components in the criteria set against which Reclamation is assessing alternatives, the paramount objective must be meeting the FWS recommended flow targets. Others, though not unimportant, do not rise to the significance of endangered fish recovery. On this measure, Alternative C (Fish Peak—with Increased Duration) is clearly superior. Alternative C is the only alternative that incorporates the objective of achieving the longer peak flow durations in each year type for “improvement” of habitat, i.e., recovery rather than avoidance of jeopardy.

### 3. Target Flows

The DEIS introduces the table on FWS target flows (Table 1.2 2, page 1-16) by stating that “Table 1.2 2 presents one of the possible scenarios by which Flow Recommendations for the Gunnison River could have been derived from Pitlick’s work...” (DEIS, page 1-15). The inference in this language is that somehow the flow targets are in play, not well thought through, or are the construct of the FWS alone. This is hardly the case. They are the result of a long and thoughtful negotiation involving FWS and several water interests, including Reclamation. To suggest otherwise is to mislead the public.

ENV01-06

Furthermore, it is clear that FWS will use these flow recommendations as the basis for assessing Reclamation’s alternatives. In an April 2006 memorandum to Reclamation the FWS left no doubt about the ecological importance of the hydrologic categories and the structure of the target flows. In that memorandum [Attachment #1], FWS stated that meeting the spring peak-flow targets in moderately wet, average wet, and average dry hydrologic categories was essential for accomplishing the FWS flow recommendations and their objective of meeting the life history needs of the endangered fish.

At a July 2006 meeting, FWS clarified the goals that underlie the recommendations and also reiterated that their flow recommendations include all the numerical targets presented in Tables 4.5, Table 4.9, and related narrative in their target flow report, FLOW RECOMMENDATIONS TO BENEFIT ENDANGERED FISHES IN THE

COLORADO AND GUNNISON RIVERS (2003). FWS officials clearly stated that the EIS alternatives should be gauged against these tables and that FWS would use the tables when analyzing Reclamation’s Programmatic Biological Assessment and when issuing its Programmatic Biological Opinion.

The 2003 flow recommendation clearly articulate the biological and other benefits of increasing the amplitude of annual peaks and restoring historic variation among years. These benefits include: annual spawning cues; low-velocity habitat for adult staging and feeding; floodplain inundation to provide warm, food-rich environments; and restoring and maintaining in-channel habitat for all life stages of the endangered fish (see, e.g., flow recommendations, pages 4-4 through 4-9).

Relatedly, the flow recommendations explain the benefit of annual peaks other than just 8,070 and 14,350 cfs. They note the benefits of annual instantaneous peaks—above 900 cfs in Dry years; above 2,600 in Moderately Dry years; above 8,070 cfs in Average Dry years; and above 14,350 cfs in Average Wet, Moderately Wet, and Wet years (flow recommendations Table 4.5, page 4-13)—to “ensure that historic variability among years continues to occur” (flow recommendations, page 4-5). Pursuant to these criteria, Alternative C most aligns with the flow recommendations. In contrast, No Action, Alternative A, and Alternative D fail to meet the goals and objectives of the flow recommendations.

Regarding “physical uncertainties” (DEIS, page 1-17) the second (water availability), third (runoff timing), and fourth (wet period flooding) are all fairly obvious issues and candidates for analysis in the DEIS. Why they are listed under Flow Recommendations is unclear. The first (sediment transport), is the subject of a USGS study that is under review right now and should be in final form and available to Reclamation when it prepares the Final EIS. ENV01-07

#### 4. Aspinall Operations

The description of Alternative B (DEIS, page 2-6 et seq.) includes some description of specific Aspinall operations that will result in the peak flow targets in Figure 2.3-1 (DEIS, page 2-7). However, the overall description remains vague and contains many statements that could undercut meeting the flow targets. ENV01-08

For instance, as an example of “constraints” that might inhibit meeting a specific peak flow, the DEIS states “Blue Mesa Reservoir surface elevation may not be high enough to use its spillway.” Yet surface elevation and content targets are mostly the result of the pattern of releases from the dams throughout the year. Releases, in turn, are guided by Bureau Blue Mesa content targets (e.g., December 31 and March 31 reservoir targets). ENV01-09

Thus, whether or not a reservoir surface elevation is “high enough to use its spillway” is largely in the control of the Bureau. And, because the content and elevation targets are discretionary—a point overlooked in the DEIS—year-round operation of the Aspinall Unit could have a tremendous impact on meeting the recommended flow. Relatedly, the

description of elements “included in all alternatives” (DEIS, pages 2-14 through 2-17) glosses over the fact that many of the elements are subject to the discretion of the Bureau, including the December 31 “icing” target and the summer reservoir elevation target.

In short, the DEIS needs to be more comprehensive in describing how discretionary operations will be governed to meet specific alternatives.

Alternative C (DEIS, Section 2.3.4, page 2-8 and page 2-9) lacks any explanation of how specific Aspinall Unit operations will change to meet the peak flow targets articulated in Table 2.3 3.

## 5. Biological Assessment, Biological Opinion, and Related Issues

The biological assessment and yet-to-be released draft biological opinion raise several important issues including:

- a. Colorado River Flow Needs and Impacts
- b. The Dolores Project
- c. Baseline and Future Depletions
- d. Scope of the Programmatic Biological Assessment

### a. Colorado River Flow Needs and Impacts

The impacts of the proposed action on the Colorado River below the Gunnison are poorly disclosed and not sufficiently analyzed for the Programmatic Biological Assessment (PBA) to conclude that they will not adversely affect or will have an overall beneficial effect on the listed fishes. First, a much less cryptic explanation of this key hydrologic information for the Colorado River is required, while the inconsistency in the peak flow data between Table 16 of the PBA and its Attachment 9 should be resolved. Only by extracting the difference in peak flows on the Gunnison from Attachment 8 and then comparing the first table in Attachment 9 to its second, does it appear that the “potential change” in peak flow on the Colorado River is simply the change in the one day peak on the Gunnison between the baseline and proposed action. Then the average of these changes by year type is not consistent with those reported in Table 16 (PBA, page 91).

ENV01-10

The “predicted change” in the average monthly flow in the Colorado River in May and June listed by Attachment 9 appears to be simply the change in the average monthly flows on the Gunnison, but the full tables in the PBA (8 and 17) of the monthly flows on the Gunnison for the baseline and proposed action are presently independently and are not compared or otherwise discussed as the basis for this singular, predicted change in flows on the Colorado.

The second, and more serious issue, is that PBA fails to account for a host of intervening factors on the Colorado and Dolores rivers when it presumes that these increases in the peak day flows and average monthly flows in May and June will be additive to Colorado River flows and beneficial to the listed fishes. The PBA suggests that these additions

from the Gunnison may be maximized when coordinated reservoir operations are implemented on the Colorado River, and when an average of 48,000 acre feet per year is generated by those coordinated operations, other reservoir releases and irrigation efficiency improvements (PBA, page 91). Such generalizations hardly account for all the operations and depletions on the Colorado River that may or may not match up with the flow improvements on the Gunnison, and are clearly insufficient to support the conclusion that the resulting flows will benefit the listed fish the Colorado and assist in their recovery. They also fail to account for the attenuation of flow patterns and time lags that will occur over hundreds of river miles.

On the Gunnison, all major operations and depletions were incorporated into hydrologic modeling, and the flow outputs from that modeling were systematically compared against the flow recommendations. If that kind of flow impact analysis is needed for biological assessment on the Gunnison, then why are generalizations and almost no analysis sufficient for the Colorado? The same kind flow recommendations for the Colorado were developed and are inserted into Attachment 2 of the PBA, but the PBA makes no attempt to measure the Colorado River flows resulting from the proposed action against those recommendations. It does not even examine the simple additions from the Gunnison against those recommendations, let alone the flows that adequately account for intervening factors on the Colorado. ENV01-11

The PBA concedes that the accrual of the beneficial effects flow effects on the Gunnison to the Colorado River ecosystem can only be assumed and that the extent to which they will accrue is fraught with uncertainty (PBA, page 92). Much more than this uncertain assumption is required to conclude that the proposed action will not adversely affect or have an overall beneficial effect on the listed fishes dependent on the flows of the Colorado River.

**b. Dolores Project**

The PBA purports to assess the biological implications of water depletions and federal reservoir operations not only in the Gunnison Basin, but also of the depletions and operations of the Dolores Project, which is not in the Gunnison Basin. The analysis of the Dolores Project is exceedingly scant and limited to a few adds-on assuming with significant uncertainty that the flow benefits from the Gunnison will extend to the Colorado. No attempt is made to examine how the depletions and operations by the Dolores Project will impact those flow improvements. No recommendations are made about what flows are needed to avoid jeopardy or recovery the listed fish on the Colorado River below the Dolores River. The PBA is therefore wholly inadequate in addressing the flow impacts of the Dolores Project on the habitat for Colorado pikeminnow and razorback sucker in the Colorado River. ENV01-12

The PBA also fails to address the impact on the flows in the Dolores River before it joins the Colorado. After the biological opinion was issued on the Dolores Project in 1980, the lower Dolores River was found to be suitable habitat for all life stages of Colorado pikeminnow and to be located immediately upstream of a pikeminnow nursery on the

Colorado River (Valdez, 1992). During this habitat survey, four pikeminnow were captured in the lower Dolores in August and October 1991. The importance of the lower Dolores River for native warm fishes, including pikeminnow, was most recently recognized by the Wildlife's Aquatic Wildlife Management Plan for the Dolores River Basin issued by the Colorado Division of Wildlife in January 2008. Its objective for the lower Dolores includes maintaining healthy populations of Colorado pikeminnow. The BPA is deficient because it does not address this utilization of the lower Dolores by pikeminnow, the CDOW plan, and the impact of the Dolores Project on this pikeminnow habitat, regardless of any indeterminate flow improvement on the Colorado River. ENV01-13

Because the programmatic biological assessment for Aspinall operations does not sufficiently address the flow impacts of Dolores project operations on the listed fishes, the continued coverage of the Dolores project by the biological opinion for the Aspinall Unit and the Gunnison Basin should be conditioned on the completion of an adequate assessment of the flows needed for recovery of the listed fishes on the lower Dolores River and the Colorado River below the Dolores within a reasonable timeframe and then on the review of the extent to which Dolores project operations are consistent with meeting those needs. Without such a condition, the programmatic opinion for Aspinall will lack a defensible basis for determining the compliance of Dolores project operations with the Endangered Species Act.

**c. Baseline and Future Depletions**

The hydrologic modeling of the baseline condition within the Gunnison Basin is based on historical flows from 1975 to 2005 (PBA, page 46) which have been reduced by historic depletions over that same period in the same basin by an average of 428,348 acre feet per year (PBA, page 25, citing Reclamation 2008). Because this set of hydrologic modeling and historic depletions do not include the Dolores Project, there is no basis for including 99,200 acre feet per year of depletions by that project in this baseline condition. Similar hydrologic modeling for the Dolores River would be need to be combined with the modeling for the Gunnison to establish a consistent baseline condition, and because the hydrologic modeling is limited to the Gunnison River, the PBA is again deficient in addressing the flow impacts by the Dolores Project. ENV01-14

The PBA also fails to address new depletions in the baseline condition that have not occurred historically in the Gunnison Basin and that have not therefore been incorporated in the hydrologic modeling and the analysis of depletion impacts on the flows recommended for endangered fish recovery. The biggest addition is the difference between the historic average of 428,348 acre feet per year of depletion and the total of 500,000 acre feet per year of average depletion that is included in the baseline (PBA, Table 5, page 25), or an average increase of over 71,000 acre feet per year. The inclusion of 71,000 acre feet per year of new depletions in the baseline just for the Gunnison Basin would exceed the maximum of 45,000 acre feet of new depletions contemplated by paragraph 32.4.5 of the decree for the reserved water right for the Black Canyon of the Gunnison National Park [Attachment #2]. The addition of new depletions in the baseline should not exceed the 45,000 acre feet per year maximum in the Black Canyon decree ENV01-15

and the impact of adding such new depletions to the historic average of depletions should be modeled and disclosed. Once such new depletions are properly modeled, Alternatives A, B, and D may fall even shorter in providing the flows needed for recovery.

The “baseline” of the PBA fails to include the water right for the Black Canyon of the Gunnison National Park. The definition of Environmental Baseline is said to include “the past and present impacts of all Federal, State, and private actions” (PBA, page 38), yet the baseline conditions listed elsewhere noticeably omit Black Canyon flows (PBA pages 43-46). ENV01-16

**d. Scope of the PBA**

Because Alternative C is superior and preferred for providing the flows needed for endangered fish recovery, the PBA must address Alternative C as the basis for a biological opinion. Finalizing the EIS before Alternative C is assessed biologically as the preferred alternative truncates the contribution that Aspinall operations could make to endangered fish recovery, pre-judges the outcome of the EIS, and puts the whole Recovery Program at risk. Indeed the DEIS will need to be supplemented once the PBA addresses Alternative C as the preferred alternative for fish recovery. ENV01-17

In addition, since the draft Programmatic Biological Opinion (draft PBO) has not yet been released and could alter the analysis of alternatives in the DEIS, we reserve the right to revise our comments on the draft EIS after the draft PBO is issued.

**6. Black Canyon of the Gunnison National Park**

The DEIS fails to adequately include the reserved water right for Black Canyon of the Gunnison National Park (Black Canyon) [Attachment #2]. This failure is noteworthy in light of the fact that parties to the Black Canyon settlement process reached final agreement on quantity and timing of the reserved right in May of 2008, nine months before release of the DEIS.<sup>2</sup> ENV01-18

The DEIS notes the appropriate way to address the Black Canyon right is to be “part of No Action along with other established senior water rights” (DEIS Sec. 2.3.1, page 2-4). Yet the DEIS does not yet comply with this rule; it instead relegates analysis of Park resources to Appendix F (which appears to analyze only sediment transport) and makes hastily-crafted excuses in the cover letter to the DEIS. Inexplicably, though the flows for the Black Canyon were finalized through settlement by May 2008, nine months prior to release of DEIS, the DEIS failed to include Black Canyon in its No Action alternative.

<sup>2</sup> The cover letter accompanying the release of the DEIS notes that rather than “nearing quantification”, the reserved water right for Black Canyon of the Gunnison National Park (Black Canyon) was approved by the court in December 2008. The letter fails to include the context that, following nine months of negotiations, the parties to the Black Canyon settlement process reached agreement in May 2008. There were no changes made to the flows depicted in the settlement agreement between May and release of the DEIS, leaving more than adequate time to include the Black Canyon right inside the No Action alternative.

Excuses for failure to include the Black Canyon water right are illogical, inadequate and, if not remedied, are actionable in federal court.

First, the DEIS cannot assume the Black Canyon right will not be exercised (DEIS cover letter, page 2). Indeed, under the same reasoning, it would have to assume away other senior downstream water rights, something inconsistent with the BOR's long-standing commitment to meet senior water rights. Indeed, in light of discussions taking place at the Aspinall operations meeting held in Grand Junction on April 23, 2009, the Bureau gives every indication of meeting the Black Canyon right. ENV01-19

Second, the BOR was willing to include the Black Canyon water right in the draft text of the "baseline" and No Action shared with cooperating agencies starting as far back as 2005. It cannot be dropped from consideration now, simply because it includes peak flows in addition to 300 cfs baseflows.

Third, throughout the Black Canyon negotiations which began in September 2007, BOR staff members touted their ability to incorporate the Black Canyon right into Aspinall Unit modeling, real-life operations, and the Aspinall Unit EIS. The settlement agreement on the Black Canyon right, which has been unchanged as to the flow elements since May 2008, has specific formulae and target flows that are understood—and indeed were proposed—by federal officials from several agencies at Department of the Interior. These abilities, statements, formulae, and flows were relied upon by parties to the negotiation.

Fourth, the DEIS's Appendix F is a strange and hamstrung perspective on meeting Park values. It appears limited to analysis of sediment transport (with a passing note to woody vegetation); it lacks analysis of benefits of flows to fish, invertebrates, the larger environment, or aesthetic values of Park visitors. It is also unclear whether this analysis was generated by, in collaboration with, or has the blessing of the National Park service and its very capable analysts.

The key effect of the failure to include Black Canyon rights in the No Action alternative in the DEIS is that it destroys the very foundation of analysis on all other alternatives. For example, assessment of the impacts of action alternatives against the No Action alternative—related to benefits to fish, hydropower impacts, flooding, reservoir levels, etc. (i.e., the vast majority of the DEIS)—will look different (and likely much smaller) when the Black Canyon right is rightfully included in the No Action. ENV01-20

Western Resource Advocates and The Nature Conservancy brought this matter to the attention of BOR 15 months ago, immediately after the January 10, 2008, Aspinall EIS meeting. We noted

*The No Action Alternative should include a place-holder for the Black Canyon water right. Failure to do so will render the No Action Alternative incomplete, make comparison against action alternatives impossible, and require substantial revision to the EIS. (Letter from WRA and TNC to BOR, January 16, 2008) [Attachment #3]*

In sum, analysis in DEIS is flawed for failing to include the Black Canyon water right in the No Action alternative and all other alternatives. The DEIS must be amended to address this inadequacy.

#### 7. Yield of Aspinall Unit

The DEIS continues to confuse the issue of “remaining project yield” as it relates to meeting the FWS flow recommends for endangered fish. The DEIS accurately reflects there are no “foreseeable proposals” for using remaining project yield (DEIS, page 2-17). Thus, logically by the very nature of its storage and release from the Aspinall Unit, remaining project yield is water to be used to meet the flow needs of endangered fish. ENV01-21

Language in the DEIS inserted by the State of Colorado during cooperating agency meetings—suggesting that “consumptive use up to a total of 300,000 af of project yield” would “not be precluded by any of the alternatives”—creates illogical, circular arguments and therefore must be removed from the DEIS.

First, the Recovery Program, including the re-operation of the Aspinall Unit, can serve as the Reasonable and Prudent Alternative (RPA) for what would otherwise be a jeopardy determination for the four endangered fish of the Colorado River and its tributaries (DEIS, page 2-17). In other words the Recovery Program “covers” existing depletions, new depletions not exceeding 4,500 acre feet per year, and new depletions exceeding 4,500 acre feet per provided that sufficient progress continues to be made toward the recovery of all four endangered fishes. As discussed above, the PBA only analyzes the flow impacts of 428,348 acre feet of existing depletions, only in the Gunnison Basin. The State’s language, however, proposes that up to 300,000 acre feet of yield—which the BOR readily admits is not a reasonably foreseeable future depletion—be somehow excluded from recovering the endangered fish.

Second, the DEIS accurately notes if there is a “proposed sale or use” of Aspinall yield that “may adversely affect a listed species, formal ESA consultation will commence” (DEIS, page 2-17). In other words, any future large-scale additional use of water from the Aspinall Unit will require both additional NEPA and ESA processes separate and apart from what currently is being undertaken through the Aspinall EIS. Thus, Aspinall yield is indeed part of the water available today to meet endangered fish needs and must be modeled and implemented as such in the DEIS and FEIS.

Third, the State of Colorado has, for more than a year, stated publicly that there will be no large-scale diversion from the Gunnison and that any remaining project yield will contribute to downstream deliveries as part of Colorado’s obligations under the 1922 Colorado River Compact. Language on DEIS pages 2-16 and 2-17 that is inconsistent with this clearly-articulated State position must be removed.

## 8. Flooding

The DEIS accurately notes that the U.S. Army Corps of Engineers' flood control manual has a standard of 15,000 cfs at the Delta gage (above the confluence of the Gunnison and Uncompahgre rivers) (DEIS, page 2-14 and page 3-22). This flow rate is the key measurement tool for evaluating the effects of various alternatives on flooding and should be used consistently throughout the EIS. Under current analysis, the DEIS notes that over the 31-year study period flows above 16,000 cfs would occur six years under Alternative A, five years under Alternative B, and four times under Alternative C (DEIS, at page 3-7; 3-64). Thus, under the appropriate analysis, the greatest negative impact to flooding (i.e., creating flows above the Army Corps' limit) is from Alternative A.

Any past efforts by BOR efforts to keep Delta flows at rates below 15,000 cfs (e.g., DEIS, page 2-14) should accurately reflect that the policy is not to avoid causing "damage" but to avoid loss of life and serious property damage. ENV01-22

The City and County of Delta have recently spent substantial resources to protect the wastewater treatment plant (DEIS, page 3-22). Upgrades are meant to protect the facility against flows in excess of 33,000 cfs.

The discussion of the potential cost of inspection after spills at Aspinall Unit dams notes that one inspection of Crystal dam cost \$85,000 (DEIS, page 3-55). However, it is not clear that each inspection will cost this much, as is projected on DEIS page 3-52. ENV01-23

## 9. Drought Rules

On page 2-12, under the heading *Extreme Conditions, Maintenance, and Emergencies*, Reclamation describes operating rules for the years following Dry or Moderately Dry Years and for certain reservoir conditions in Blue Mesa. But it does not provide an explanation for how it chose these extreme event operating criteria, what other criteria it may have considered, how often these circumstances appeared in the historic record, or what the consequences would be for the system and the endangered fish for operating the system with and without these "shortage sharing" arrangements. Reclamation owes the public a fuller explanation than it has provided in the DEIS. ENV01-24

The DEIS should follow the approach used in the Black Canyon water rights decree, where parties agreed to scale back environmental flows by a small amount to assist in recovering reservoir storage after severe drought. The Black Canyon decree [Attachment #2], at paragraph 32.3.1, used a formula triggered only by the combination of extremely low end-of-year (December 31) Blue Mesa reservoir levels and current dry year conditions. In addition, the reduction in peak flows was made proportionate to the status of the reservoir. ENV01-25

The proposed drought rule (DEIS, page 2-12) is inconsistent with the Black Canyon approach. For peak flow reductions, it makes no sense to look to March 31 (or April 30!) reservoir levels, as these are a product of current year operations, not prior year drought

conditions. The DEIS cannot tier drought response to “artificial” drought created through reservoir management (specifically winter-time releases).

#### 10. Hydropower impacts

In specifying the “additional guidelines for Aspinall Unit operations included in the proposed action,” Attachment 11 to the PBA should clarify that there is flexibility in meeting hydropower contracts, as noted earlier in the PBA (Attachment 3 at its page A-30) and similar to the flexibility in meeting water contracts in times of shortage (its page 44; see also DEIS page 2-15).<sup>3</sup> To be fully accurate, the language in Attachment 11 and elsewhere should be revised to specifically note compliance with “federal environmental laws” consistently with applicable federal register notice for the Western Area Power Administration (Western) from 1999, which states:

ENV01-26

Western recognizes that the Bureau of Reclamation is under a continuing obligation to ensure that the operation of the hydroelectric facilities comply with Federal environmental laws. Western may revise the amount of power marketed by the SLCA/IP as required to respond to changes in hydrology and river operations, upon 5 years’ notice to customers. [Attachment #4]

Indeed, Western may make immediate changes to hydropower deliveries as long as it makes up the difference between actual hydropower generation and contract delivery amounts through the purchase of power on the market.

The DEIS asserts that any purchase of replacement power because of variations in generation at Aspinall under any of the action alternatives could reduce power revenues available for deposit in the Basin Fund and “thus impact the amount of funding available for Operation and Maintenance of Facilities, including support for environmental programs, and also reduce repayment capability of the Basin Fund” (DEIS, page 3-51). This assertion adds no real information because it does not distinguish between the action alternatives and does not indicate how this impact varies among them. Because this assertion is also unsubstantiated and speculative, it should be deleted.

ENV01-27

The DEIS further suggests that charging the Basin Fund \$7 million per year to support the endangered fish recovery programs will impact the Basin Fund’s liquidity “when firming power purchase expenses are high (due to drought or experimentation) because the moneys are transferred to the program[s] and are not available to purchase the power needed to meet contractual requirements” (DEIS, page 3-45). This suggestion has nothing do with the action alternatives and should be stricken. If this gratuitous suggestion is not stricken, the DEIS should explain that because these charges against the Basin Fund are non-reimbursable they will not impact the Basin Fund’s liquidity long as

ENV01-28

<sup>3</sup> The host of inconsistencies between the specifications of operating conditions included in the baseline or no action alternative found at several different places of the DEIS (pages 2-3 & 4, 2-14 & 15) and PBA (43-46 and Attachments 3 and 11) creates a host of ambiguities. All such specifications need to be thoroughly reconciled.

WAPA schedules sufficient repayments that equal or exceed the non-reimbursable charges, and that although such scheduling was tight in one year, the WAPA protocol is to schedule sufficient repayments.

#### 11. Trout impacts

According to the DEIS, the preferred alternative and Alternative C could both have some impact to the recreational trout fishery between Crystal Reservoir and the confluence of the North Fork of the Gunnison River, with Alternative C having greater effects on trout than alternative B. The effects of Aspinall operations on trout do not justify the selection of Alternative B over Alternative C. Indeed, the DEIS notes that the trout fishery in this reach “has been extremely productive” over the past several decades, proving trout’s resiliency during a time period that “included extended droughts, high flow years, flash floods, and other extremes” (DEIS, page 3-73). It notes also that “introduction of whirling disease has been the primary factor adversely affecting the fishery” (id.).

Alternatives B and C could have two varieties of impacts on trout. First, according to the DEIS, the two alternatives would increase the number of days of low flows of 300 cfs (DEIS, page 3-73), which over an extended period will negatively affect fish populations (id., page 3-70). The DEIS anticipates that there will be 23.3 days of 300 cfs flows under alternative C and only 18 days of flows of 300 cfs under alternative B. The impacts of low flow days resulting from either alternative do not appear significant, however, as the DEIS projects that, under any alternative “adult [trout] habitat should remain adequate to support a Gold Medal fishery . . . . .” (DEIS, page 3-73).

The second possible impact of Alternatives B and C to the trout fishery is that, during the spring, higher peak flows or rapid changes in flow rates can reduce the success of trout fly recruitment (DEIS, page 3-74). While the DEIS provides that Alternative C would have the greatest impact of the alternatives on trout fry recruitment and habitat (id., page 3-74), according to Table 2.7 1 Alternative C would provide adequate recruitment conditions in 87% of years, the same as the no action alternative (id., page 2-26). Because the overall health of a trout fishery does not require successful recruitment every year, an alternative that provides adequate recruitment conditions in 87% of years is more than sufficient for the long-term maintenance of the trout resource. Further, the difference between Alternatives B and C is not dramatic, with alternative B producing adequate trout recruitment conditions in only 8% more years than alternative C (id., page 2-26).

Even if the impacts to trout recruitment of higher peak flows under Alternatives B or C were more dramatic than Table 2.7 1 suggests, as the DEIS recognizes it would be possible to minimize those impacts through careful timing of the peak flow and moderate ramping rates up to and down from the peak (DEIS, pages 3-70 & 3-74). Though the Bureau understands the importance of peak timing and ramping rates to trout recruitment, the alternatives allow the peak to be timed outside of the timeframe that is least damaging to trout and allow ramping rates, both ascending and descending, that are steeper than the Division of Wildlife recommends (DEIS, pages 2-2 – 2-9). No matter which alternative

ENV01-29

the Bureau selects, in order to minimize impacts to trout recruitment, we urge it to commit to adopting the Division of Wildlife's ramping rates as presented on page 3-70 and to use best efforts to deliver the peak during the last week of May or first week of June, or at another time that will have the least impact to trout, as recommended by the Colorado Division of Wildlife.

While Alternatives B and C may have some adverse impact to trout, the positive effects of these alternatives on the overall health of the river and the trout fishery should not be minimized or overlooked. The DEIS acknowledges that periodic peak flows in the 2,000 to 4,000 cfs range are important for "moving silt, maintaining spawning areas and maintaining habitat for insects" (id., page 3-69), and the DEIS recognizes that moderate spring peaks "generally benefit the river by moving sediment, increasing insect diversity, performing channel maintenance, and keeping riffle habitat productive" (id., page 3-70). The DEIS also notes that dramatic adverse impact of whirling disease on the Gunnison River's rainbow trout population (DEIS, page 3-68), and recognizes that peak flows under alternatives B and C would have the most benefit in reducing the prevalence of whirling disease (id., page 3-75). On balance, these positive impacts of Alternatives B and C may outweigh any adverse effects.

Finally, while it is appropriate for the DEIS to consider the impacts of Bureau operations on the trout fishery and note steps that can be taken to minimize any such impacts, it must be pointed out that the Secretary's obligation under the ESA is to the federally-listed warm water fish species, not to the recreational trout fishery. The Bureau must take action for the benefit of the listed fish species, irrespective of any impacts to trout that might result from doing so. ENV01-30

## 12. Fish Ladder Flows (DEIS, pages 1-10, 1-11, 1-16)

Migration flows of 300 cfs below the Redlands Fish Ladder are recommended as biological necessary or as the "minimum migration flow" from April to September (PBA, pages 91 & 99). Under the proposed action, however, the average number of days that such flows would be provided does not improve but drops markedly from 32.2 to 22.3. The rationale given for this decline is that some volume of Aspinall releases is shifted towards the spring period, which implies a cap on the Aspinall releases for meeting this need and the other flow recommendations. The amount and basis for such a cap must be disclosed and then biologically assessed. ENV01-31

The proposed action also flaunts a minimum migration flow of 300 cfs by only providing 100 cfs below the Redlands Ladder from April to September (PBA, page 21), using storage water as necessary. A full explanation for this substantial cut-back is required. Even then, the proposed action will reduce the number of days under which 100 cfs of migration flow will be provided (PBA, page 91). Such a reduction of even 100 cfs of migration flows indicates that sufficient storage water will not be used to maintain them. ENV01-32

The degradation of 300 cfs of migration flow based on an undisclosed allocation of Aspinall releases volumes, the unexplained cut-back to 100 cfs, and not maintaining even 100 cfs with storage releases, are all biologically unacceptable.

**13. Adaptive Management** (DEIS section 2.3.6.2, page 2-11)

We appreciate the recognition of importance of adaptive management of the uncertainties associated with new operations and the long-term response of the endangered fish and their habitat to new flow regimes, but the proposed action needs a more explicit explanation or description of the process and timeframes that will be utilized in the development the monitoring plan and how the Bureau might respond to new information not included in the final EIS. The adaptive management process should be laid out as a time bounded pathway that connects scientific hypotheses, ecological models, and improved Aspinall operations, that otherwise addresses the criteria that we specified for the Recovery Program in 2005, and that clearly answers the kinds of questions that we posed then. Memorandum attached. ENV01-33

Although we agree that the monitoring plan should be developed within the Recovery Program because that is where we can expect regular scientific review, the adaptive management process should also be sufficiently transparent so that other stakeholders can follow the monitoring activities and are not surprised by any significant changes in Aspinall operations to provide recovery flows.

**14. Selenium**

We appreciate the commitment the Bureau is taking on to develop a Selenium Management Plan and fully support the steps described to support a selenium reduction program. We would like to see some recognition of this commitment incorporated as a condition in the Programmatic Biological Opinion and Record of Decision. We understand how difficult it will be to adequately fund this effort and how that funding will be very complex as to the multiple sources of money and subject to the vagaries of annual appropriations. We need to know, by acknowledgment that selenium reduction will remain as a priority for the Bureau. ENV01-34

We appreciate your attention to these comments and would be happy to discuss them.

Sincerely,

Bart Miller, Water Program Director  
Western Resource Advocates

Dan Luecke, Ph.D.  
Western Resource Advocates

Robert Wigington, Western Water Counsel  
The Nature Conservancy

Tom Iseman, Water Program Manager  
The Nature Conservancy

## HIGH COUNTRY CITIZENS' ALLIANCE

PO Box 1066 • Crested Butte, Colorado 81224  
(970) 349-7104 • FAX: (970) 349-0164  
office@hccaonline.org • www.hccaonline.org

4/24/09

Steve McCall  
Bureau of Reclamation, Western Colorado Area Office  
2764 Compass Drive, Suite 106  
Grand Junction, CO 81506  
[smccall@uc.usbr.gov](mailto:smccall@uc.usbr.gov)

COMMENT LETTER ENV02

RE: Aspinall DEIS Comments

Dear Steve,

These comments are submitted on behalf of High Country Citizens' Alliance, the Sierra Club and San Juan Citizens Alliance. These comments supplement the oral testimony I presented at the Public Hearing in Gunnison on 4/7/09.

We find fault with the stated Purpose and Need identified in 1.1.2 and 1.1.4. The stated purpose, to modify operations to avoid jeopardy is flawed and inconsistent with BOR's involvement in the Recovery Program. BOR's obligation under ESA is to assist in recovery and to enhance habitat. On the Flaming Gorge EIS, the stated purpose is to protect and assist in recovery of the fish and designated critical habitat even of that means not maximizing the incidental purpose of hydropower generation. If the stated purpose is revised to properly reflect the Bureau's responsibilities, then the logical preferred Alt. would be C. The Biological Assessment supports this rationale, as it is more about assisting recovery than avoiding jeopardy. Maintaining habitat does not necessarily provide for recovery. ENV02-01

If you are not going to provide for endangered fish recovery, then we support Alt. B. Alt. B is better than A and D as they do not even provide sufficient flows to maintain habitat. The needed flows are not just for sediment transport but also for benefits to fish, invertebrates, the larger environment and aesthetic values of Park visitors. Operating the Aspinall Unit to support these environmental benefits will not significantly interfere with the other purposes of the Unit.

The Black Canyon rights must be part of the baseline and all other alternatives including No Action. There is a long-standing commitment to meet all senior water rights. The BC rights must be modeled to reflect their impact on all alternatives. There also seems to be a discrepancy between the historic average of 428,348 acre feet per year of depletion and 500,000 acre feet per year of average depletion that is included in the baseline (Table 5, page 25). Leaving out this average increase of over 71,000 acre feet per year will distort the modeling as to whether the flows will achieve the benefits of the preferred flows. ENV02-02 ENV02-03

The DEIS confuses the issue of Aspinall Unit Yield as it relates to meeting the Flow Recommendations. Because there are no reasonably foreseeable depletions other than those mentioned in the DEIS (page 2-23 and elsewhere), all remaining yield should be used to meet flow needs of endangered fish and other project purposes. The language inserted by the State of Colorado should be removed. ENV02-04

We appreciate the recognition of importance of Adaptive Management to address the uncertainties associated with new operations and the long-term response of the endangered fish and their habitat to

*Protecting the land, water and wildlife of the Upper Gunnison River Basin since 1977.*



## HIGH COUNTRY CITIZENS' ALLIANCE

new flow regimes. We support the need to establish a monitoring plan to address these uncertainties. We would like to see a more explicit explanation or description of the process that will be utilized in the development of the decision-making process for the monitoring plan and how the Bureau might respond to new information included in the final EIS. ENV02-05

Although we agree that the monitoring plan should be developed within the Recovery Program because that is where we can expect sufficient scientific rigour to occur, but we would also suggest that the Adaptive Management process should seek sufficient transparency so that other stakeholders involved in reservoir operations can also follow the progress of the monitoring activities so proposed refinements of operations do not come as a surprise and that these refinements can be adequately vetted.

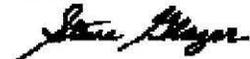
The Flood Control Manual limits the ability to fully meet the high flow recommendations during wet years. As we have commented in the past, the wet year flow targets can be met without causing serious property damage or loss of life with proper corrective actions above and below the Highway 50 bridge. If properly engineered, the gravel accretions since the Aspinall Unit was built could be dredged and the backwaters opened up on the north side below the bridge to increase streambed capacity. Since the Recovery Program supports breaching the levee on the north side below the bridge, Reclamation could negotiate a cost share on this effort. ENV02-06

Selenium is discussed very thoroughly in the Biological Assessment in Appendix B. We appreciate the commitment the Bureau is taking on to develop a Selenium Management Plan and fully support the steps described to achieve an effective selenium reduction program. This commitment needs to be expressed as a clear condition to the Programmatic Biological Opinion and to the final EIS and ROD. We understand how difficult it will be to adequately fund this effort and how that funding will be very complex as to the multiple sources of money and subject to the vagaries of annual appropriations. We need to know, by acknowledgment that selenium reduction will remain as a priority for the Bureau. We are frustrated by the timing of the deadline for this DEIS without first being able to review the draft Programmatic Biological Opinion. We anticipate being able to provide additional comments if the PBO suggests a need to add or change our positions on the DEIS and hope that those comments will be considered before the release of the FEIS. ENV02-07

We would like to see more concrete information about how operations will actually change described in the FEIS and ROD.

Thank you for this opportunity to comment on the DEIS. We may have more to add to these comments after reviewing the draft PBO.

Regards,



Steve Glazer  
HCCA, Water Program Director





**INFORM**

INFORMATION NETWORK FOR RESPONSIBLE MINING

PO Box 461235  
Glendale, CO  
80245-1235

**COMMENT LETTER ENV03**

Damien Borg  
Executive Director  
damien@informcolorado.org  
[www.informcolorado.org](http://www.informcolorado.org)

Bureau of Reclamation, Western Colorado Area Office  
2764 Compass Drive, Suite 106  
Grand Junction, CO 81506

RE: *Draft Environmental Impact Statement* Aspinall Unit Operations- Colorado River Storage Project Gunnison River DES 09-02

Dear Carol DeAngelis,

Thank you for the opportunity to offer these comments in regards to the *Draft Environmental Impact Statement* Aspinall Unit Operations- Colorado River Storage Project.

INFORM appreciates the work done by the Western Colorado Area Office of the Bureau of Reclamation. Furthermore, over-all we agree with the plan of modifying the operations of the Aspinall Unit put forward in the *Draft Environmental Impact Statement* to help save Colorado's endangered fish. After a careful reading of the document, I agree that the modifications in conjunction with the proposed adaptive management strategy will provide the sufficient flows for the endangered fish while not overly altering the purpose of the Aspinall Unit.

However, I do have two concerns. First off, the conclusion to *Appendix B* states,

“When compared to the environmental baseline, the proposed action will have overall beneficial effects on the razorback sucker and Colorado pikeminnow and their critical habitat and may benefit the bonytail and humpback downstream in the Colorado River. The new operations of the Unit along with future Recovery Program efforts and conservation measures will improve designated critical habitat conditions for the fish as compared to baseline conditions. However, there is a potential for take under both the baseline and under the proposal. This potential take from entrainment in canals and depletions could result in the harm or kill of individual endangered fish in the Gunnison or Colorado rivers. *Therefore, due to the potential for take, the finding is that the proposed action may affect, is likely to adversely affect endangered fish species.* Other species

considered in this PBA should not be affected by the proposed action” (*Aspinall-Vol-2 DEIS Appendix B* page 104 emphasis added).

As I read this conclusion, it seems to imply that because of the proposed action there will be more pikeminnows and razorback suckers, and consequently an increased possibility of “take.” My concern is the italicized sentence could be used (all-be-it) out of context to argue against all proposed actions or against similar strategies to aid endangered fish species. I would like to suggest that the sentence be changed to read, *Therefore, the increased number of individual fish increases the likelihood of “take,” and thus, the finding that the proposed action may affect, is likely to adversely affect individual endangered fish.*

ENV03-01

My second apprehension has to do with selenium. “Selenium concentrations are of particular concern to fish and wildlife resources” (*Aspinall-Vol-1 DEIS* page 3-17). In several areas of the *Aspinall-Vol-1 DEIS*, there are mentions to past mining impacts on the area; however, on-going mining is not discussed. The Colorado Division of Reclamation Mining and Safety (DRMS) recently tested several active Department of Energy uranium leases and found waste-rock dumps and ore stockpiles leaching selenium (along with aluminum, lead, arsenic, uranium and zinc).

While it would be gratifying for INFORM to collect data on selenium as it relates to on-going mining and present that data as part of a “Selenium Management Program,” it may be more effective for the Bureau of Reclamation to contact the DRMS directly. In either case, it is important to address selenium as it relates to on-going mining.

ENV03-02

INFORM’s goal is to ensure social, economic and environmental justice for all inhabitants of Colorado. Pursuing this goal requires INFORM to educate the public about the dangers that exist when unsafe and irresponsible mining practices are permitted. We do this through the dissemination of information and through education; moreover, we help organize local people whose water, quality of life and economy are most threatened by irresponsible mining.

In conclusion, I would like to thank the Bureau of Reclamation for their efforts and reiterate that over-all I support the proposed action. Additionally, thank you for considering my comments; if I can be of any help, please feel free to contact me.

Sincerely,

Damien Borg

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COMMENT LETTER ENV04

April 24, 2009

Steve McCall  
Bureau of Reclamation  
Western Colorado Area Office, 2764  
Compass Drive, Suite 106  
Grand Junction, Colorado 81506  
(970) 248-0638  
Fax: (970) 248-0601  
smccall@uc.usbr.gov

Re: Comments on Aspinall Unit (Gunnison River) Draft Environmental Impact Statement

Dear Mr. McCall

Living Rivers and the Center for Biological Diversity submit this letter as comments on the draft Environmental Impact Statement (EIS) by the Bureau of Reclamation (Reclamation) for the Aspinall Unit on the Gunnison River.

Reclamation's truncation of habitat along this stretch of Upper Basin Colorado River has gone on unabated for four decades, devastating critical habitat for Colorado River endangered fish. Throughout this period Reclamation has been fully aware of the need to implement mitigation measures such as fish ladders, selective withdrawal, sediment augmentation or dam decommissioning, but up until now has been resistant.

While we appreciate Reclamation's effort to finally address these problems with this draft EIS, we find it lacking sufficient analysis of the problem and of Reclamation's role in perpetuating it, and thus find little value any of the alternatives presented in achieving its intended recovery objectives.

PO Box 466 • Moab, UT 84532 • (435) 259-1063 • Fax (435) 259-7612  
[www.livingrivers.org](http://www.livingrivers.org)

Page 2  
April 24, 2009  
Mr. Steve McCall

### Purpose of and Need for the Proposed Action

Reclamation's longstanding negligence is directly responsible for the loss of Colorado pikeminnow, razorback sucker, bonytail chub and humpback chub throughout the Upper Colorado River watershed. Reclamation knew as early as 1967 that its dam operations here constituted a threat to these endangered species. Beginning in 1978 the US Fish and Wildlife Service, in its Biological Opinions for Upper Basin dam operations, stated clearly that Reclamation's actions had degraded critical habitat, and that mitigation measures were urgently needed. This was further formalized in 1994 when the Gunnison and the Colorado rivers were formally designated with critical habitat, and should have been managed accordingly and promptly.

Reclamation's longstanding resistance toward undertaking programmatic and basin-wide actions to remove jeopardy for these endangered species stands in direct conflict with 40 C.F.R. 1508.27 (NEPA), which states:

ENV04-01

*(a)...the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality...Both short- and long-term effects are relevant...(b)...The following should be considered in evaluating intensity...(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts...*

Reclamation's delinquency in working to comply with NEPA and ESA has now brought the bonytail chub and razorback sucker to the brink of extinction. While efforts to augment these endangered populations with hatchery-born fish are laudable, the mere act of artificially producing fish to be deposited into river habitat that is too far degraded to support their reproduction is a thoroughly useless exercise and in no way constitutes sound recovery for endangered species.

ENV04-02

No discussion of the purpose and need for this proposed action can be complete without a systematic, independent review of Reclamation's history in creating this purpose and need, and how unless Reclamation's internal culture is changed, the agency is incapable devising a credible response, much less implementing one.

ENV04-03

Page 3  
April 24, 2009  
Mr. Steve McCall

### **Adaptive Management**

The preferred alternative and its flow recommendations include a proposal to establish an Adaptive Management Program (AMP) to oversee dam operations at the Aspinall Unit. As has been demonstrated by both the Glen Canyon and Flaming Gorge Dam programs, this approach has the potential to be highly politicized and dominated by special interest that marginalizes the recommendations of science to properly inform and affect recovery. It's been well over a decade since the Adaptive Management Program has been underway at Glen Canyon Dam, and Grand Canyon native fish habitat is no better off. The razorback sucker is now extirpated and the humpback chub still borders on the edge of extinction, while hydropower interests still control whether or not anything beneficial for Grand Canyon's native fish will be implemented. We're only two years into the Flaming Gorge experiment, but nonetheless the same flawed principles apply: science must take a back seat to special interest while habitat continues to deteriorate. This must not be the case with any AMP established for the Gunnison Aspinall Unit; peer-reviewed science should be determining the fate of these unique and endangered habitats. ENV04-04

### **Climate Change**

Over the past four years mounting research illustrates that the Colorado River water supply system is unlikely to meet its delivery requirements in the future. The most recent findings by Tim Barnett and David Pierce as published in *Proceedings of the National Academy of Sciences* earlier this month forecasted, "if climate change reduces runoff by 10%, scheduled deliveries will be missed ~58% of the time by 2050. If runoff reduces 20%, they will be missed ~88% of the time."

Although it's now widely accepted that warmer global temperatures are very likely to contribute to reduced runoff for Colorado River storage reservoirs and water users, Reclamation has been well aware that even without climate change the likelihood of a water shortage has been looming due to the over allocation of the water rights relative to natural flows. Reclamation must become present and accountable to a situation that became self-evident in 1953 when congressional hearings for the Colorado River Storage Project began, which duly informed the public that the hydrologic determination of the Colorado River Compact is flawed. Although an agreed-upon adjustment for the basin has been reset at 15 million acre-feet (maf) at the Lee's Ferry gage (Compact Point), the average flow of the

Page 4  
April 24, 2009  
Mr. Steve McCall

Colorado River since the signing of the Upper Basin Compact (1948) has been reduced to an average annual flow of 14.17 maf, and for the last decade the average has been a mere 11.47 maf.

In 2008 Reclamation demonstrated token recognition to the problem of looming shortages with the implementation of Shortage Criteria for the operations of Lake Powell and Lake Mead. Unfortunately, as we and a number of other stakeholders have advised, Reclamation has failed to take into account the range of likely shortages that scientists are forecasting, illustrating yet again its culture of yielding to the demands of special interest as opposed to the broader public, to which the agency is responsible.

No credible alternative for the proposed can be developed unless it first makes an assessment in light of the impacts of climate change on flows, dam operations and ultimately the habitat condition of Colorado River endangered fish. As a result, this EIS is fundamentally flawed, until a thorough analysis of climate change impacts relative to the proposed action are evaluated. ENV04-05

#### **Preliminary Alternatives**

Reclamation has provided no legitimate rationale for why it has not evaluated the dam decommissioning alternative as a means for improving habitat conditions sufficient for recovery of Colorado River native fish. The only reference to the decommissioning alternative states, "Concepts initially eliminated included decommissioning the Aspinall Unit or portions of it because this alternative would not meet the CRSP purposes." ENV04-06

We consider such a view surprising since in 2006 and 2007 in Reclamation comments relating to the decommissioning alternative we and others proposed in relation to the reoperations of Lakes Powell and Mead under low reservoir conditions stated at length that the only reason the decommissioning alternative was not explored was due to a congressional rider barring Reclamation from undertaking such an analysis as it relates to Glen Canyon Dam. Reclamation is under no such constraints in regards to the Aspinall Unit. In fact, the guidelines from the Council on Environmental Quality (CEQ) compel Reclamation to address the full range of potential alternatives. With dam decommissioning becoming increasingly popular as a means of restoring native riverine habitat, it is indeed a credible alternative that must be explored in the context of this proposed action.

Page 5  
April 24, 2009  
Mr. Steve McCall

### **Water Quality**

The presence of high selenium concentrations in the Gunnison River remains an unresolved issue that was not sufficiently addressed in this EIS. Though selenium has been reduced, the rates remain high enough to suspect the fertility of endangered species has been compromised. The implications are that the proposed flow regimes for the Gunnison River may be insufficient if native fish sterility is indeed a pervasive problem due to selenium concentrations. ENV04-07

### **Non-native Fish**

Reclamation acknowledges that the existence of non-native species is a fundamental reason why native fish populations suffer in the Colorado River basin. The Aspinall Unit should be managed exclusively for the benefit of native fish. As demonstrated in the Adaptive Management Program of Glen Canyon Dam, the management of enhancing both native and non-native fish simultaneously has not brought the desired recovery of the humpback chub or the razorback sucker. Non-native fish must be made a lesser priority and, as need be, removed from the Gunnison River altogether. Moreover, above the Aspinall Unit, we encourage the agencies to recover of the native Colorado River cutthroat trout. ENV04-08

### **A Flawed Approach**

Reclamation's approach attempting to address the deterioration of critical habitat along the Gunnison is fundamentally flawed as it is taking a piece-meal approach to habitat restoration, when native habitat was designed with Reclamation's artificial boundaries in mind. For example, there are another 200 miles of critical habitat beyond the confluence of the Gunnison and Colorado Rivers that has not been sufficiently addressed in this EIS or any EIS by Reclamation. This is also true of the Flaming Gorge EIS concerning the middle and lower reaches of the Green River. We have observed that a serious problem exists with native fish mortality during summer patrols of the lower reaches of the Green and Colorado rivers.

Reclamation must therefore broaden the purpose and need statement to include a basin-wide programmatic EIS in order to address the growing loss of critical habitat for Colorado River endangered fish throughout the Colorado River watershed. ENV04-09

Page 6  
April 24, 2009  
Mr. Steve McCall

Besides implementing performance-orientated recovery programs, this basin-wide PEIS must include the investigation of decommissioning unnecessary dams to increase the range of critical habitat, transfer water storage from surface reservoirs to managed aquifer recharge facilities, initiate sediment management plans, develop a floodplain management plan below Davis Dam, and return Colorado River water to the estuary at the Gulf of California.

ENV04 - 10

Sincerely,



John Weisheit  
Living Rivers  
Conservation Director

Michele Harrington  
Center for Biological Diversity  
Rivers Conservation Manager



**WESTERN RESOURCE  
ADVOCATES**

**Comment Letter ENV05**

April 24, 2009

Steve McCall  
U.S. Bureau of Reclamation, Western Colorado Area Office  
2764 Compass Drive, Suite 106  
Grand Junction Colorado 81506  
[smccall@uc.usbr.gov](mailto:smccall@uc.usbr.gov)

Re: Additional comment on Aspinall DEIS—Dolores Project

Steve:

On behalf of Western Resource Advocates (WRA)—but not our partner group The Nature Conservancy (TNC)—I write to make one small but important additional comment on the Draft Environmental Impact Statement (DEIS), specific to the Programmatic Biological Assessment (PBA) and its inclusion of the Dolores Project.

The analysis articulated in the joint WRA/TNC comment letter section 5.b, paragraphs 1 and 2 (found on pages 7 and 8 of the joint WRA/TNC comment letter) leads WRA to the conclusion the current PBA for Aspinall operations is clearly insufficient for determining the compliance of Dolores project operations with the Endangered Species Act. WRA believes the flow needs of the listed fishes on the lower Dolores River and the Colorado River below the Dolores must be adequately assessed and then a separate biological opinion rendered on the operations of the Dolores project prior to finalizing the PBO and Aspinall EIS.

**ENV05-01**

Sincerely,

Bart P. Miller  
Water Program Director and Attorney  
Western Resource Advocates

COLORADO • 2260 Baseline Road, Suite 200 • Boulder, CO 80302 • 303.444.1188 • Fax: 303.786.8054 • Email: [info@westernresources.org](mailto:info@westernresources.org)  
NEVADA • 204 N. Minnesota Street, Suite A • Carson City, NV 89703 • 775.841.2400 • Fax: 866.223.8365 • Email: [info@westernresources.org](mailto:info@westernresources.org)  
NEW MEXICO • 227 E. Palace Avenue, Suite M • Santa Fe, NM 87501 • 505.820.1590 • Fax: 505.820.1589 • Email: [info@westernresources.org](mailto:info@westernresources.org)  
UTAH • 150 South 600 East, Suite 2AB • Salt Lake City, UT 84102 • 801.487.9911 • Email: [utah@westernresources.org](mailto:utah@westernresources.org)

[www.westernresourceadvocates.org](http://www.westernresourceadvocates.org)

Apr 24 09 02:56p - Sonja Chavez de Baca

970-641-8927

p.2



Lower Gunnison Basin

### Gunnison Basin & Grand Valley Selenium Task Forces

114 Sandpiper Trail, Gunnison, CO 81230

Phone/Fax: 970-641-8927

Email: [gbstf@roadrunner.com](mailto:gbstf@roadrunner.com)

or

[gvstf@roadrunner.com](mailto:gvstf@roadrunner.com)Web: [www.seleniumtaskforce.org](http://www.seleniumtaskforce.org)

Grand Valley: Mt. Garfield

April 24, 2009

COMMENT LETTER OO01
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U.S. Bureau of Reclamation  
Attention: Ms. Carol DeAngelis  
2764 Compass Drive, Suite 106  
Grand Junction, CO 81506

Re: Se Task Force formal comments on the draft PBA for the Aspinall Unit Reoperations

Dear Ms. DeAngelis,

The Gunnison Basin and Grand Valley Selenium Task Forces (Selenium Task Forces or STF) are writing to provide our formal comments on the draft Programmatic Biological Assessment (PBA) for the Aspinall Unit Reoperations. In concept, the Selenium Task Forces offer our qualified support for the approaches described in the PBA.

As you know, the Selenium Task Forces are a voluntary group of private, local, state, and federal interests whose missions "*are to find ways to reduce selenium in our affected reaches while maintaining the economic viability and agricultural heritage of the lower Gunnison River Basin and Grand Valley.*" The Gunnison Basin Selenium Task Force was formed in 1998 and the Grand Valley Selenium Task Force in 2002 in response to the State of Colorado Water Quality Control Division placing numerous stream segments in our watersheds on the 303(d) List of Impaired Waters for selenium impairment and eventual Total Maximum Daily Load (TMDL) development.

As such, the Selenium Task Forces are well aware of the broad scope, issues and needs involved with selenium reduction in the lower Gunnison and Colorado Basins. In fact, the diverse membership of the Task Forces represents some of the region's premier experts in the area of selenium control. With this in mind, it makes sense that the Task Forces should have a central role in the planning and future implementation activities outlined in the draft PBA.

The Selenium Task Forces are listed as the proposed organization to provide oversight for the Selenium Management Program defined by the U.S. Bureau of Reclamation (USBOR) in the draft PBA Conservation Measure (Appendix II, Section 2.6, pg. 25). While the Task Forces support this idea, our support of this recommendation is contingent upon a federal commitment of financial and technical assistance.

At present, Task Force activities are entirely grant funded and its diverse membership is coordinated by a single part-time staffer who is funded, at this time, primarily by the Colorado River Water Conservation District. While we believe we can ramp-up our activities and assume

an even larger role in selenium control especially throughout the lower Gunnison Basin, there will need to be a commensurate increase in available resources to do so.

The Task Forces are currently discussing the pros and cons of the Selenium Management Program as defined in the draft PBA and we have outlined our preliminary thoughts and concerns below:

Having the STF as the lead entity addressing the Selenium Management Plan has some strong advantages, these include:

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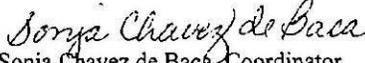
- Working with and expanding upon an existing membership base of over 200 members from the Lower Gunnison Basin and Grand Valley;
- Expanding upon the work already accomplished by the STF which includes the development of selenium reduction action plans, pre-feasibility studies of remediation options, selenium treatment technologies, and education and outreach;
- Expanding the level of trust, cooperation and education that has been established since the late 90's; and
- Having an experienced professional coordinator in place with the ability to immediately provide a.) oversight and tracking of the development and implementation of the proposed Long Range Selenium Reduction Plan, b.) facilitation of agreements, c.) attainment of funding, d.) assistance with education and outreach activities, and e.) facilitation of modifications to the management program through adaptive management.

However, strong concerns exist within our organization with respect to several aspects of the proposed Selenium Management Program including:

- The lack of clearly identified financial resources for STF staff support to carry out the oversight of the Se Management Program. The STF currently works with very limited resources and would need a strong federal financial commitment from the USBOR to take on the identified responsibilities;
- The Selenium Task Force is strictly a *voluntary* group with significant support from our members and related agencies. At this time, we are not an official non-profit or 501(c)(3) organization. It may become necessary for the Task Forces to become a legal entity;
- The Selenium Management Program's funding is very dependent upon the Salinity Control Program (SCP) funding to support selenium reduction elements; however, the singular purpose of the SCP is to reduce salinity loading, not selenium; and
- The Task Forces are concerned that there needs to be better communication and coordination between the USBOR, the U.S. Fish and Wildlife Service (USFWS), the State of Colorado Water Quality Control Division (WQCD) and the Environmental Protection Agency (EPA) regarding the upcoming Lower Gunnison River Selenium TMDL in order to avoid redundancies and ensure consistency in the two processes. The adoption of a new TMDL will be another federal action that will require Section 7 consultation. The Task Forces believe this topic warrants further discussion. It could be an efficient and expeditious step to add this TMDL action to the list of actions currently being consulted under the draft PBA. The Task Forces may be the best entity to facilitate this discussion.

In closing, we would like to thank you for the extent of your efforts to seek public input and comment on the draft PBA. If you have any questions for the Task Forces, please contact me. We look forward to working with you further on these important matters.

Sincerely,

  
Sonja Chavez de Baca, Coordinator  
Gunnison Basin & Grand Valley Selenium Task Forces

Cc: Patty Gellatt (USFWS)  
Cc: Selenium Task Forces (via electronic mail)  
Cc: Greg Naugle (WQCD)  
Cc: Phil Hegeman (WQCD)  
Cc: Steve Gunderson (WQCD)  
Cc: Karl Herman (EPA)

**Ralph E. Clark III**  
519 East Georgia Ave.  
Gunnison, Colorado 81230  
Tel. 970-641-2907

COMMENT LETTER IND01

22 April 2009

Re: Comment on Aspinall Unit  
Operations DEIS

Bureau of Reclamation,  
Western Colorado Area Office  
2764 Compass Drive, Suite 106  
Grand Junction, Colorado 81506

Thank you for the opportunity to comment on the DEIS prepared for the future operations of the Aspinall Unit. I have also appreciated the breath of extensive discussions and reflection of input from many interests over the past several years leading to the preparation of the DEIS. Below are comments prepared after reading the DEIS.

- \* The document is well prepared and will offer a very valuable source of background information for preparing to cope with consequences of expected climate change.
- \* Seeking a more natural flow regime or hydrograph is very desirable. Monitoring and studies should be continued.
- \* The thermodynamics of releases from Taylor Reservoir during the winter period has changed icing considerations upstream of Blue Mesa Reservoir. Icing can be a major influence upon channel maintenance. Recent publications from the U.S. Army Corps of Engineers, Cold Weather Research and Engineering Laboratory, offer nonstructural techniques for management of icing should it become a problem. This could allow greater overwinter storage so as to enhance spring peaks and their duration. IND01-01
- \* The initial SWSI process appears not to have given much attention to water requirements associated with energy resource development in western Colorado. Some modeling and analysis of Aspinall Unit operations with possible requirements, such as those projected in the 1970's, would be useful. IND01-02
- \* The high quality of water released from the Aspinall Unit does appear to offset or reduce some water quality impacts from discharges and runoff below the reservoir. Attention may be required in the future to water quality implications of possible geothermal development upstream of the Aspinall Unit both to the reservoirs and to water quality below them. IND01-03
- \* Expected greater intensity of precipitation events due to climate change may imply management of the reservoirs so have more storage available to cope with sudden events. IND01-04

Respectfully:

  
Ralph E. Clark III

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**GUNNISON PUBLIC HEARING (GPH)**

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REPORTER'S TRANSCRIPT OF PUBLIC HEARING April 7, 2009

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IN RE:

DRAFT ASPINALL ENVIRONMENT IMPACT STATEMENT.

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PURSUANT TO NOTICE to all parties in interest, the above-entitled matter came on for public comment hearing on Tuesday, April 7, 2009, commencing at 6:56 p.m., at the Gunnison County Fairgrounds, 275 South Spruce Street, Gunnison, Colorado, before Lisa Persichitte Reed, Certified Realtime Reporter within and for the State of Colorado.

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1 APPEARANCES:

2 BUREAU OF RECLAMATION:

3 Ed Warner, Resources Division Manager  
4 Carol DeAngelis, Area Manager  
Steve McCall, Environmental Specialist

Page 1

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I N D E X

PAGE

PUBLIC COMMENTS:

By Michelle Garrison	GPH1	10
By Steve Glazer	GPH2	11

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P R O C E E D I N G S

MR. WARNER: I guess I was going to wait until 7:00, but I don't think we're going to see a lot more people. Why don't we get started.

I think -- I guess I'll welcome everybody tonight to our public hearing on the draft Environmental Impact Statement associated with the operations in the Aspinall Unit.

I think most of us -- like most of you, I think everybody here knows everybody, maybe one

Page 2

040709.txt

11 gentleman here. But if you don't, my name is Ed  
12 Warner. I'm with the Bureau of Reclamation. A few  
13 people that are with us are Carol DeAngelis, our area  
14 manager. Steve McCall, environmental specialist with  
15 Reclamation Grand Junction. Dan Crabtree, Reclamation  
16 Grand Junction; Terry Stroh. Jane Blair is with our  
17 power office out of Salt Lake City. Nancy Coulam is  
18 with our regional office out of Salt Lake City. I  
19 think I've got all the Reclamation people.

20 Our court reporter is Lisa Reed, who will be  
21 recording everybody's comments tonight. So be careful  
22 what you say -- or don't be careful, I guess, if you  
23 want it on the record.

24 Anyway, tonight, we're obviously doing these  
25 public hearings as part of our National Environmental

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1 Policy Act. We've all come to know and love it. The  
2 purpose of this hearing tonight is to hear from the  
3 public. I don't want to (inaudible) if you don't think  
4 you are the public, especially somebody like Frank. We  
5 are here to hear your comments and concerns, any views  
6 you have on the EIS.

7 I think everybody knows most of this, but  
8 the Bureau of Reclamation is the lead agency on this  
9 EIS. There are several cooperators, I probably missed  
10 some, but I'll try to mention them. Fish and Wildlife  
11 Service is a cooperating agency with us. National Park  
12 Service is a cooperating agency. Southwest Water  
13 Conservancy District is a cooperating agency. The  
14 State of Colorado is a cooperating agency. A power  
15 interest represented by --

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(Reporter requested Mr. Warner to speak up.)  
17 MR. WARNER: The power interests that were  
18 cooperating, I just said, were represented by western  
19 Area Power Administration and Platte River Power  
20 Authority. And I think that's all of our cooperating  
21 agencies.

22 Again, the proposed plan, the preferred  
23 alternative that is contemplated in this draft EIS  
24 calls for changing operations of the Aspinall Unit. I  
25 think everybody knows the Aspinall Unit has a series of

1 dams right outside Gunnison here, Montrose is the --  
2 Blue Mesa, Morrow Point, Crystal Dams and Reservoirs.

3 The purpose of this EIS is to present  
4 alternative operations that are intended to avoid  
5 jeopardy to downstream endangered fish while continuing  
6 to meet all the authorized purposes of the Aspinall  
7 Unit.

8 Again, I've mentioned what the dams are,  
9 reservoirs, and so forth downstream. Blue Mesa  
10 Reservoir, very important in Colorado. It is the  
11 largest reservoir in Colorado. It's very important for  
12 a lot of reasons as outlined pretty much in Section 1  
13 of the 1956 Colorado River Storage Project Act. I  
14 probably am going to miss a couple, but basically, to  
15 store water for beneficial consumptive use, making it  
16 possible for the state to develop -- upper-basin states  
17 to develop their compact enforcement, provide water for  
18 irrigation, flood control, hydropower generation.

19 Again, I mentioned what we're doing here is  
20 trying to provide alternative -- or operations that  
21 assist in meeting the flow recommendations for the

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22 endangered fish in critical habitat in the Gunnison  
23 River. That critical habitat is from Delta on down  
24 specifically to the mouth or the confluence of the  
25 Uncompahgre River down.

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1 I guess we all particularly think that  
2 (inaudible) fish are trouble, but I think it is  
3 generally acknowledged that water development and  
4 introduction of nonnative fish are some of the bigger  
5 and more significant factors.

6 As I said, to meet the flow recommendations  
7 or assist in the flow recommendations, the Upper  
8 Colorado River Recovery Program has developed flow  
9 recommendations for the Gunnison River and the Lower  
10 Colorado River presented in the Reclamation EIS. These  
11 flow recommendations basically call for higher flows in  
12 the springtime and a more steady and protective base  
13 flows for the remainder of the year.

14 Over here, I think if you walked in and you  
15 didn't grab one, are volume I and volume II of this  
16 draft EIS. Volume I is the different alternatives that  
17 we analyzed that are described in there and the impacts  
18 of those alternatives on the resources that we  
19 analyzed, such as hydropower, fish and wildlife,  
20 recreation, irrigation, and so on. Volume II, the  
21 technical appendices contain, obviously, the technical  
22 appendices, tables, and so forth.

23 And more importantly, what I think a lot of  
24 people are very interested in is a programmatic, I  
25 guess, I don't know if we called it that in there or

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1 not, but a programmatic biological assessment. The  
2 biological assessment is a document that we write, send  
3 to the Fish and wildlife Service that talks about the  
4 effect of proposed action on endangered species. The  
5 Fish and wildlife Service will give us, hopefully, a  
6 proposed programmatic biological opinion back. And the  
7 programmatic basically means and I think, again, most  
8 people know that because most people here pushed for  
9 that, to have that programmatic biological opinion,  
10 which is intended to give Section 7 coverage to all  
11 existing private and public uses in the Gunnison Basin.

12 we've talked about, again, volume I and what  
13 we're doing here. Volume I, again, has all the  
14 alternatives and impacts. I mentioned those to you. I  
15 hope you get a copy.

16 we're going to accept comments, I think most  
17 people know that, but public comments or written  
18 comments or any other way you want to get them to us  
19 until April 24th. Any written comments you have, you  
20 can submit to us at that time, along with any comments  
21 tonight you have, again, that the purpose of this  
22 meeting tonight. And those and the comments we hear  
23 tonight will be considered in the final EIS, which will  
24 be distributed to the public.

25 I think there was a handout on the table,

8

1 unless I'm mistaken, that talked about how to provide  
2 written comments to us. If you didn't get that, grab  
3 that yellow sheet of paper if you want to provide  
4 written comments.

5 As we said, Lisa is taking a transcript of  
6 this. That's why she is here. It is a public hearing.

Page 6

040709.txt

7 A few rules I probably ought to just lay out. All  
8 hearings in session, all spoken words will be recorded  
9 by the reporter. So it's kind of important that nobody  
10 else speaks so she is not -- first off, I know she's  
11 probably trying to hear me -- trying to decipher what  
12 two or three people are saying. So if you want to make  
13 your comments, come up here to the podium. There's a  
14 little switch on the microphone, switch it on so we all  
15 can hear, and make sure it's nice and clear. Again,  
16 it's just important that one person at a time speaks.  
17           Again, just emphasizing the purpose of this  
18 meeting is to receive public comments on this EIS, this  
19 draft EIS. This is not a forum for any of us to debate  
20 the merits or drawbacks of the proposed action. We're  
21 here to listen. Any people presenting their views will  
22 not be questioned. The only questions that any of us  
23 might ask might be for clarification or, like I say,  
24 "would you state your name and who you are," which  
25 would be nice when you come up here.

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1           with that, I guess I just want to say thank  
2 you for coming. We appreciate all the time you guys  
3 have taken. All the comments given tonight will be  
4 carefully considered in the final EIS.

5           So with that, we're going to start the  
6 comment period. Obviously, you can see, there are only  
7 a few people here. And I think we have only two people  
8 signed up to present comments right now. So what we're  
9 going to propose is that we'll go through the comments  
10 and let people make them. And stick to five -- we'll  
11 say five minutes. And if you want to go on, since we

Page 7

040709.txt

12 don't have an outpouring of people clamoring to stand  
13 up here, we'll give you a few more minutes if you need  
14 it.

15 But I think what we'll propose is let's go  
16 ahead and hear the public comments. And then maybe  
17 we'll go off the record at that point, if we want to  
18 have a little bit of informal discussion about  
19 something you wanted to ask us or something. Like I  
20 said, these are public hearings. I think it might be a  
21 good use of our time if somebody else does walk in and  
22 wants to talk, we'll go back on the record and go back  
23 to letting people walk up there and make comments.

24 So, again, if you walk up here, we'll call  
25 you in a minute. State your name for the reporter and

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1 who you are with. And if you have a written statement,  
2 why don't you leave it with us and make sure we can get  
3 it in the record.

4 So I guess with that, our first speaker, and  
5 I'm assuming that -- Terry gave me this list -- that it  
6 has the right order. Michelle, you get to go first.  
7 So come up.

8 MS. GARRISON: Michelle Garrison, Colorado  
9 water Conservation Board, referencing the Colorado  
10 Department of Natural Resources.

GPH1

11 First, I just wanted to thank Reclamation  
12 for all their hard work over the years and their hard  
13 work in trying to balance all of the needs and uses of  
14 the water. We appreciate everything that they've done.

15 The Colorado Water Conservation Board is  
16 going to submit a few minor comments still about some  
17 authority regarding the compacts and also some wording  
Page 8

040709.txt

18 regarding the recovery program and the flow  
19 recommendations. The Division of wildlife may be  
20 submitting comments as well. And I do not know at this  
21 time the nature of those comments, although I think  
22 they are more substantive.

23 The CWCB agrees with the hydrology modeling  
24 that was done, and the data in it we find to be  
25 sufficient and consistent with some of the data that we

11

1 use for our modeling purposes. I know there have been  
2 some questions about that, but we think the work that  
3 was done is agreeable and consistent with what we would  
4 have done. And I think that's it.

5 If there are updates about how the selenium  
6 issues are being handled and what the Fish and wildlife  
7 Service has to say about that, we would like to be kept  
8 in the loop on those issues. That is all the comments  
9 I have.

GPH1-1

10 MR. WARNER: Thanks, Michelle. Next on our  
11 extensive list here is Steve Glazer. Peer pressure is  
12 already getting to you. I can see Frank tell you five  
13 minutes.

14 MR. GLAZER: Thank you for this opportunity  
15 to speak. I'm speaking on behalf of High Country  
16 Citizens' Alliance and the Sierra Club at this time.

GPH2

17 I want to repeat or reiterate or go beyond  
18 what Michelle said in expressing my appreciation for  
19 the collaborative approach that the Bureau has taken  
20 over operations and in developing this EIS process. We  
21 are particularly appreciative of how transparent you  
22 have allowed this process to be. And we are extremely

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23 appreciative, in particular, of the openness of the  
24 cooperator's meetings in allowing, to a limited extent,  
25 the public to participate in the process.

12

1 Reading the biological assessment, after  
2 reading the purpose and need, raises some questions as  
3 to which is the prevailing strategy in that the purpose **GPH2-1**  
4 and need talks about avoiding jeopardy, whereas the  
5 biological assessment is almost exclusively focused on  
6 assisting recovery.  
7 The purpose and need is different in this  
8 EIS than that which was utilized in the Flaming Gorge  
9 EIS. It was stated in the purpose there that the  
10 purpose of reoperation was to assist in recovery. So I  
11 will expand further on that in written comments that we  
12 will submit.

13 The Black Canyon water rights, which have  
14 been adjudicated, should have been or need to be  
15 incorporated into the no-action alternative. We would  
16 like to see how that affects the operations. I assume **GPH2-2**  
17 we won't see a supplement, so I guess we'll have to  
18 wait for the filing of that. But we insist that those  
19 water rights be incorporated in and add lines as to how  
20 it went and what the implications are for this EIS.

21 The next item I want to talk about is the  
22 language about project yield, the flows for endangered  
23 fish must utilize that water. There seems to be some  
24 contradiction in that there is discussion about **GPH2-3**  
25 reserving that water for anticipation of that water not  
13  
1 being available for downstream needs. But then it goes  
2 on to explain that if that water is completed, 240,000

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3 acre-feet additional completion, that that water could  
 4 end up being depleted out of it and would not be  
 5 available. It also says that any substantial **GPH2-3 (cont.)**  
 6 completion, as we all know, would have to go through  
 7 NEPA and Section 7 consultation. So why even have that  
 8 language in there?

9 As you well know, many of the cooperating  
 10 agencies and many public organizations offered and  
 11 suggested different language. We thought that there  
 12 was different language. And then we see in the  
 13 document a reversion back to the original language that  
 14 was being discussed. So we think that that section  
 15 needs some work to be more consistent and to be more  
 16 realistic.

17 On the topic of assisting recovery, the flow  
 18 tables in the EIS need to be assisting all life stages  
 19 of the fish, as well as aquatic invertebrates and other  
 20 aspects of the larger environment, and not just to **GPH2-4**  
 21 deliver sediment downstream. And we would like to see  
 22 more recognition of that, that those flow tables need  
 23 to reflect the true purpose of why those flows are  
 24 being proposed.

25 I could go on, but Frank told me that I

14

1 should only spend five minutes. And I think I covered  
 2 the highlights, but there will be much more minutia  
 3 eventually. Thank you.

4 MR. WARNER: Thank you. Before -- we do  
 5 have a couple other people, so I will solicit. There  
 6 are a couple other public people, but there are a few  
 7 other agencies. So I will at this time solicit any

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8 comments from anybody. George?  
9 GEORGE: No. Makes reasonably good sense to  
10 me.  
11 MR. WARNER: I guess maybe with that, maybe  
12 we'll go off the record for a little bit. And there  
13 were a couple people who raised questions, and I won't  
14 speak for other people, but we could have an informal  
15 discussion about a few issues if you would like. So  
16 now we're off the record.  
17 (Discussion held off the record.)  
18 (The meeting was adjourned at 7:17 p.m.)  
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1 STATE OF COLORADO )  
2 )ss. REPORTER'S CERTIFICATE  
3 COUNTY OF )  
4 I, Lisa Persichitte Reed, do hereby certify that I  
5 am a Certified Realtime Reporter and Notary Public  
6 within the State of Colorado;  
7 I further certify that these proceedings were  
8 taken in shorthand by me at the time and place herein  
9 set forth, that it was thereafter reduced to  
10 typewritten form, and that the foregoing constitutes a  
11 true and correct transcript.  
12 I further certify that I am not related to,  
13 employed by, nor of counsel for any of the parties  
Page 12

040709.txt

14 herein, nor otherwise interested in the result of the  
15 within proceedings.

16 In witness whereof, I have affixed my signature  
17 and seal this 16th day of April, 2009.

18 My commission expires April 12, 2012.

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\_\_\_\_\_  
Lisa Persichitte Reed  
Certified Realtime Reporter

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