FEDERAL ENERGY REGULATORY COMMISSION
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OFFICE OF ENERGY PROJECTS

Project No. 12686-001—Oregon
Mason Dam Hydroelectric Project
Baker County

Fred Warner, Jr.
County Commission Chair
1995 3rd Street
Baker City, OR 97814

Subject: Study Plan Determination for the proposed Mason Dam Hydroelectric Project

Dear Mr. Warner:

Pursuant to 18 CFR § 5.13(c), this letter contains our study plan determination for the proposed 3-MW Mason Dam Hydroelectric Project. The proposed project would be situated at the base of the existing Bureau of Reclamation's Mason Dam and would utilize flow releases made at the dam as dictated by the Bureau. On October 10, 2006, Baker County filed its proposed study plan for gathering information on the following resources: water; fish and aquatic; wildlife; botanical; recreation and land use; aesthetic; and cultural and tribal.

In November and December 2006, Baker County held two multi-day study plan meetings to informally resolve any differences between the proposed study plan and stakeholders' study requests.[1] Representatives of the following entities attended one or both meetings: Federal Energy Regulatory Commission staff, Baker County, the U.S. Forest Service (Forest Service), the Oregon Department of Fish and Wildlife (ODFG), the US Fish and Wildlife Service (Fish and Wildlife Service), the Oregon State

[1] The following entities submitted study requests: The Federal Energy Regulatory Commission; Oregon's Departments of Fish and Wildlife and Environmental Quality; the US Forest Service; the US Fish and Wildlife Service; and the Confederated Tribes of the Umatilla Indian Reservation.

Department of Environmental Quality (ODEQ), and the Confederated Tribes of the Umatilla Indian Reservation (Umatilla). Comments on the proposed study plan were filed by the Forest Service, ODEQ, ODFW, and the Fish and Wildlife Service in January 2007.

Following the conclusion of the study plan meetings, Baker County filed a revised study plan on February 8, 2007. The revised study plan consists of eight individual studies addressing water, fish and aquatic, wildlife, botanical, recreation and land use, aesthetic, and cultural and tribal resources. The Oregon Department of Fish and Wildlife filed comments on the revised study plan on February 22, 2007.

Staff have reviewed the revised study plan and the comments received on both the proposed and revised study plans. Their review and recommendations are attached to this letter as Appendix A. The following is a summary of staff's review and recommendations:

- *Dissolved Oxygen and Temperature Assessment*
    - This study would assess the dissolved oxygen (DO) concentration of water entering the Mason Dam intake within Phillips Reservoir, and then discharged immediately downstream of the Dam into the Powder River, during summer conditions. The information obtained from the study would be used to evaluate potential project affects on DO and water temperature downstream of the project. Staff recommends the inclusion of this study as modified in Appendix A.

- *Vegetation, Rare Plant, and Noxious Weed Assessment*
    - This study would survey plants in the proposed project area and is necessary to evaluate the effects of project construction and operation on the distribution and composition of botanical resources, including wetland and riparian habitats, rare plants, and noxious weeds. Staff recommends the inclusion of this study as modified in Appendix A.

- *Threatened, Endangered and Special Status Species Assessment*
    - This study would survey sensitive flora and fauna in the proposed project area and is necessary to evaluate the effects of project construction and operation on federally threatened, endangered or candidate species. Staff recommends the inclusion of this study as modified in Appendix A.

- *Recreation Visitor Survey and Use Study*
    - Implementation of this study would obtain additional information regarding recreationist utilization, including activity types and locations in the proposed project area and is necessary to evaluate the potential effects of construction and operation of the proposed project on recreational resources. Staff recommends the inclusion of this study as modified in Appendix A.

- *Assess Traditional Cultural Properties*
    - Implementation of this study would obtain the information needed to address issues pertaining to traditional cultural properties associated with the construction and operation of the proposed project. Staff recommends the inclusion of this study as modified in Appendix A.

- *Assess Archaeological and Historic-era Properties*
    - Implementation of this study would obtain the information needed to address issues pertaining to Archaeological and Historic-era Properties associated with the construction and operation of the proposed project. Staff recommends the inclusion of this study as modified in Appendix A.

- *Hydrology and Stream Flow Analysis*
    - Baker County has implemented this study as proposed and included the collected data with the filing of their revised study plan. Although Baker County did not provide all the data requested by the Oregon Department of Fish and Wildlife, Commission staff concludes that the information provided by Baker County is sufficient to evaluate the effects of construction and operation of the proposed project on the Powder River's hydrology. Therefore, pursuant to section 5.9 (b), Study Criteria 4, staff concludes that further study is unnecessary.

- *Bull Trout and Redband Trout at upper confluence of Phillips Reservoir* and *Fish Entrainment studies*
    - The Oregon Department of Fish and Wildlife, the Fish and Wildlife Service and the Forest Service requested a study to evaluate bull trout and/or redband trout use of Phillips Reservoir and the potential for their entrainment. The Oregon Department of Fish and Wildlife also requested an entrainment study to evaluate current levels of entrainment at Mason Dam. Baker County presents two studies to address these study requests. However, in lieu of conducting their

proposed studies, Baker County proposes to install a fish screen at the intake of Mason Dam for the protection of the federally listed threatened bull trout, and the State listed species of special concern and the Forest Service's sensitive species, the redband trout. Staff, in their analysis of Baker County's proposal to screen the Mason Dam intake (see Appendix A), found that there is sufficient information on the presence of bull trout and redband trout and their potential use of Phillips reservoir to justify Baker County's proposal to screen the Mason Dam intake in lieu of conducting the requested or proposed studies; and therefore, pursuant to section 5.9 (b), Study Criteria 4 staff does not recommend the inclusion of these studies at this time.

- *Salmonid Spawning and Juvenile Density Study*
  - Baker County does not propose to conduct the *Salmonid Spawning and Juvenile Density Study*, requested by the Oregon Department of Fish and Wildlife and the Forest Service. Staff finds that the existing information on the potential effects of project construction and operation and the presence of salmonids species downstream of the dam, is satisfactory to formulate license requirements for the protection of those aquatic resources. Therefore, collection of the additional requested information is unnecessary. Pursuant to section 5.9 (b), Study Criteria 4 and 5, of the Commission's regulations, staff does not recommend the implementation of this study.

Regarding Baker County's revised study plan, I agree with staff's recommendations and proposed modifications to the study plan as discussed in Appendix A. The proposed Mason Dam Hydroelectric Project revised study plans filed February 8, 2007, with the staff recommended modifications, identified in Appendix A, are approved.

If you have any questions regarding this letter, please contact Kenneth Hogan at (202)502-8434.

Sincerely,

J. Mark Robinson
Director
Office of Energy Projects

cc: Service List
Mailing List
Public Files

Appendix A

Staff's Review of the Revised Study Plan and Comments Filed

In their revised study plan filed February 8, 2007, Baker County proposes the following studies:

- Dissolved Oxygen and Temperature Assessment
- Vegetation, Rare Plant, and Noxious Weed Assessment
- Threatened, Endangered and Special Status Species Assessment
- Fish Entrainment Study
- Recreation Visitor Survey and Use Study
- Assess Traditional Cultural Properties
- Assess Archaeological and Historic-era Properties
- Bull Trout and Redband Trout at upper confluence of Phillips Reservoir
- Hydrology and Stream Flow Analysis

Baker County does not propose to conduct the *Salmonid Spawning and Juvenile Density Study*, requested by the Oregon Department of Fish and Wildlife and the Forest Service.

Below, we review each of the above proposed studies and their respective comments and associated study requests in the order they appear above; except for the *Fish Entrainment* and *Bull Trout and Redband Trout at upper confluence of Phillips Reservoir* studies. For these two studies, Baker County only proposes to conduct them if the installation of a fish screen at the intake to Mason Dam is not an acceptable mitigative solution. Therefore, we discuss these two studies jointly and analyze Baker County's proposal to screen the Mason Dam intake and the need for the identified studies last. Finally, we review the Oregon Department of Fish and Wildlife's request for the *Salmonid Spawning and Juvenile Density Study* and provide a recommendation whether or not this study needs to be conducted.

<u>Dissolved Oxygen and Temperature Assessment</u>

This study would assess the dissolved oxygen (DO) concentration of water entering the Mason Dam intake within Phillips Reservoir, and then discharged immediately downstream of the Dam into the Powder River, during summer conditions. Commission staff recommends modifications to sections A6 *Project Task/Description* and B1 *Sampling Process Design* of the proposed study.

The third paragraph of section A6 states:

> "The initial time frame for this project is one field season prior to the construction for the hydroelectric plant. The field season will begin on May 1st and end on November 1st. However, if Phillips Reservoir is still ice-covered on May 1st, the field work should be delayed until two weeks after the ice is gone. Termination of the field season may occur earlier than November 1st if the field data indicates that thermal stratification has already broken down. Water samples will be collected once a week and the laboratory analysis work will be completed within the appropriate sample holding times. Progress reports will be sent to all stake holders each month."

We recommend that this paragraph be modified to read as follows:

> "*Sampling will begin during the 2007 field season.* The field season will begin *two weeks after the ice has receded from Phillips Reservoir (around* May 1st*)*, and end on November 1st. Termination of the field season may occur earlier than November 1st if the field data indicates that thermal stratification has already broken down. Water samples will be collected once a week and the laboratory analysis work will be completed within the appropriate sample holding times. Progress reports will be sent to all stake holders each month."

This recommended modification would ensure that the spring and fall turnover of Phillips Reservoir would be captured within the sampling window; consistent with generally accepted practice within the scientific community as required by Study Criteria No. 6.[2]

Site No. 5 of section B1 states:

> "Site No. 5: This site is in Phillips Reservoir within a 10 meter radius of Mason Dam. It was selected so that current ambient water quality conditions could be monitored before the water passes through the Dam."

We recommend that this paragraph be modified to read as follows:

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[2] The Study Criteria are defined in CFR 18 Part 5, section 5.9 (b) of the Commission's regulations.

> "Site No. 5: This site is in Phillips Reservoir within a 10 meter radius of the Mason Dam intake structure. It was selected so that current ambient water quality conditions could be monitored before the water passes through the Dam. *Sampling at this site will occur at one meter intervals with the first sample occurring at the reservoirs surface and the last from a depth equivalent to that of the Mason Dam intake.*"

This recommended modification would allow for the development of a dissolved oxygen and temperature profile of Phillips Reservoir; a critical element to be used to predict dissolved oxygen and temperature profiles of Phillips reservoir at various water surface elevations. As a result of this recommended modification the information collected would be consistent with generally accepted practice within the scientific community as required by Study Criteria No. 6.

Vegetation, Rare Plant, and Noxious Weed Assessment

This study would evaluate the effects of project construction and operation on the distribution and composition of botanical resources, including wetland and riparian habitats, rare plants, and noxious weeds, in the project area. However, the Commission's staff and the Oregon Department of Fish and Wildlife are concerned with the level of detail Baker County has provided regarding the methodology to be used in implementing the study (section 2.5.2). Commission staff also recommends modifications to section 2.5.3 *product*, as discussed below.

In section 2.5.2 *Survey Methodology*, Baker County proposes to use the following Forest Service reference guides:

- The Threatened, Endangered and Sensitive Plants Survey field guide
- The Threatened, Endangered and Sensitive Plants Plan Element Occurrence field guide
- The Invasive Plant Inventory, Monitoring, and Mapping Protocol field guide

The above listed field guides provide detailed methodology and will result in the collection of the data in a generally accepted practice of the scientific community. In their letter dated February 22, 2007, the Oregon Department of Fish and Wildlife raised concerns with the lack of detailed methodology in Baker County's proposed *Vegetation, Rare Plant, and Noxious Weed Assessment*. Although we agree, the study methodology is not self-contained within the proposed study plan, we find that Baker County's use of reference to the above guides is an acceptable practice.

In section 2.5.3 *Products,* Baker County proposes to provide the following:

- A noxious weed report to be prepared by Baker County Weed Control that includes the mapping effort. This report will identify, describe, and assess the extent to which project-related activities may potentially affect all noxious weeds present within the study area. In addition, this report will also outline effective noxious weed management strategies to address and alleviate effects of project-related activities.

- A rare plant report will be prepared that discusses the rare species found, their distribution, and habitat associations. If results indicate that there is a demonstrated impact or likely impact, a management plan will be developed to include some combination of avoiding impacts, protecting resources, and conducting mitigation as needed.

- A vegetation coverage report that will include study objectives, study area, methods, tabulated results, descriptions of habitats, and electronic GIS files of vegetation cover types and sample points.

Commission staff recommends that following be added to section 2.5.3. *Products*:

- *The maps included in the noxious weed report should show any concentrations of weeds in relationship to any project facilities and disturbance areas as well as roads and trails.*

- *Maps should be included in the rare plant report (if they are not already included) showing any rare plants in relationship to any project facilities and disturbance as well as roads and trails.*

- *The noxious weed and rare plant reports should include description of methodology used, dates of surveys, etc.*

- *The vegetation coverage report should include the number of acres of each type cleared, revegetated, and permanently lost. Project-related activities should include maintenance activities (mowing, vegetation thinning, herbicide use, etc.)*

- *Include survey forms as an appendix to the report.*

The above additional information would be used to determine the effects of project construction and operation on vegetation, rare plants, and noxious weeds in the project

area and will be used by the Commission in its development of license requirements (Study Criteria No. 6).

Threatened, Endangered and Special Status Species Assessment

This study would evaluate the effects of project construction and operation on federally threatened, endangered or candidate species in the project area. However, Commission staff recommends modifications to section 3.5 *Proposed Methodology*.

Other than for Bald Eagle, Baker County proposes to only map habitat of threatened, endangered and special status species within a 100-foot buffer around the project boundary. We find that this proposal may not be adequate for all species and therefore is inconsistent with generally accepted practice within the scientific community (Study Criteria 6). Specifically, the area surveyed should be dictated by how far the project impacts to a specific species are likely to reach. For example, for a species that is sensitive to noise impacts and construction disturbance the effects would likely extend beyond the 100-foot buffer being proposed. These findings are consistent with the Oregon Department of Fish and Wildlife comments in their February 22, 2007 letter.

As a result, we recommend that section 3.5 *Proposed Methodology* be modified. The second paragraph of section 3.5 currently states:

> "A biologist shall first gather all data needed to identify suitable habitat for each species found on attachment A. Then use the information from the vegetation study and research all available data to create a map that contains any suitable habitat for any threatened or endangered species that could potentially occur in the project area within 100' of the proposed project boundary. This should narrow down the list; however, if it does not then research will need to be done on the methodology in order to conduct a visual survey for direct or indirect indicators of the species presence. Specifically for the bald eagle, provide a map of the bald eagle management area, and in consultation with all relevant resource agencies, map the location of any active eagle nesting, wintering or foraging areas within the project vicinity using existing information. Assess bald eagle activity in the vicinity of the project using pre-existing studies and map any direct or indirect observations. Prepare a report that includes the above mapping effort, and identifies, describes and assesses the extent to which project-related actions and activities may affect the bald eagle. This shall be done on all threatened, endangered and special status species that were surveyed for."

We recommend that the above paragraph be revised to read as follows:

> "A biologist shall first gather all data needed to identify suitable habitat for each species found on attachment A. Then use the information from the vegetation study and research all available data to create a map that contains any suitable habitat for any terrestrial threatened, endangered, or special status species that *could potentially be affected by the project's construction and/or operation. Baker County will consult with the Fish and Wildlife Service, Oregon Department of Fish and Game, the Forest Service and the Commission to determine which species from attachment A need further survey, appropriate species specific survey methods and to define an appropriate geographic scope for each of the species to be surveyed for.*
>
> Specifically for the bald eagle, Baker County will provide a map of the bald eagle management area, and in consultation with all relevant resource agencies, map the location of any active eagle nesting, wintering or foraging areas within the project vicinity using existing information. Assess bald eagle activity in the vicinity of the project using pre-existing studies and map any direct or indirect observations. Prepare a report that includes the above mapping effort, and identifies, describes and assesses the extent to which project-related actions and activities may affect the bald eagle. This shall be done on all threatened, endangered and special status species that were surveyed for."

The Oregon Department of Fish and Wildlife, in their February 22, 2007 letter, state that Baker County's revised study *plan Threatened, Endangered and Special Status Species Assessment* is unclear as to whether it is Baker County's intent that the study include the aquatic species identified in attachment A to the revised study plan. Because each of the following may effect bull trout and/or redband trout habitats, Oregon Department of Fish and Wildlife suggest that bull trout and redband trout be included in the study due to: (1) sedimentation associated with project construction, operation and maintenance; (2) potential erosion from changes in flow pattern; (3) unplanned project shutdowns and the potential of dewatering habitat; and (4) changes in water quality including oil discharges from project works.

There is substantial existing information regarding both bull trout and redband trout in the project area. Redband trout are found to be widespread and abundant in both the upper Powder River and Phillips Reservoir (Kostow, 1995). Three tributaries of the upper Powder River (Lake Creek, Cracker Creek, Silver Creek), all located upstream of Phillips Reservoir have been identified as having bull trout populations (Buchanan *et al.*, 1997). Each of the four reasons for including these species in the survey, identified

above, are known concerns associated with the construction and operation of a hydroelectric project and would be addressed appropriately in the Commission's environmental document and subsequent license requirements; irregardless of the presence or absence of a federally listed species located downstream of the project. Staff finds that the Oregon Department of Fish and Wildlife has not sufficiently supported their argument for the inclusion of aquatic species in this study and have not demonstrated why the existing information is insufficient (Study Criteria No. 4) nor how the information to be gathered would be used to inform license requirements (Study Criteria No. 5).

Therefore, based on our current knowledge of the existing information and the ambiguity as to how the requested information would support the development of license requirements, we do not recommend including bull trout or redband trout in the *Threatened, Endangered and Special Status Species Assessment.*

Recreation Visitor Survey and Use Study

This study would obtain additional information regarding recreationist utilization, including activity types and locations in the proposed project area. However, Commission staff recommends modifications to sections 5.5.2.3 *On-Site Surveys and Observations,* 5.6 *Level of Effort and Cost* and Attachment B *Mason Dam & Upper Powder River Survey.*

The second paragraph, of section 5.5.2.3 *On-Site Surveys,* states:

> "The on-site survey will be an exiting survey with the survey site being the exit to the first parking lot (on map, attachment A). The survey will be conducted between 8:45 am and 4:15 pm. A calendar showing survey days will be provided in this study plan. Survey days will consist of 20 days randomly selected through the months May-Sept. for the main hunting and fishing seasons, and Oct-March which is the construction window proposed. Those months that correspond to hunting or fishing season will be weighted heavier due to higher activity. Attachments G, H, and I are included showing the hunting, fishing, and game bird seasons respectively. The days will be generated through a program made for random number generation in a weighted calendar format by the Baker County Technology Department. The dates generated have been added to the calendar following section 5.6."

We recommend this paragraph be modified to read as follows:

> "The on-site survey will be an exiting survey with the survey site being *near the traffic counter to engage visitors exiting both parking lots* (on map, attachment A). The survey will be conducted between 8:45 am and 4:15 pm. A calendar showing survey days will be provided in this study plan. Survey days will consist of 20 days randomly selected through the months May-Sept. for the main hunting and fishing seasons. Attachments G, H, and I are included showing the hunting, fishing, and game bird seasons respectively. *The days will be generated with two weekdays and two weekend days randomly being selected for each month, May-September*, through a program made for random number generation by the Baker County Technology Department."

By shifting the survey site to an area intercepting recreationists from both parking lots this recommended modification would ensure that every visitor entering Site 1 or Site 2 during the spring/summer recreation season would be sampled; however, it is not necessary to conduct surveys during the Oct.-March construction season because these two recreation sites are not maintained during winter months. Therefore, we are changing the survey days to be randomly selected for each month May-Sept.

The third paragraph states:

> "The surveyor will count all vehicles entering the area on the Mason Dam river road. The surveyor will ask visitors to respond to the questionnaire upon exiting. One representative from each party will be surveyed. The surveyor will either interview the visitors or will hand out the survey forms for visitors to fill out and give back to the surveyor."

We recommend that this paragraph be modified to read as follows:

> "The surveyor will count all vehicles entering the area on the mason Dam river road. The surveyor will ask visitors *upon exiting, if they would like to participate in a study about their recreation use of the Mason Dam area*. One representative from each party will be surveyed. The surveyor will either interview the visitors or will hand out the survey forms for visitors to fill out and give back to the surveyor."

It is accepted practice to ask for rather than demand participation when conducting any survey (Study Criteria 6). This recommended modification would ensure that participants have given their full consent to participate in the study.

Section 5.6 *Level of Effort and Cost* includes the study's schedule for implementation and product production. The last paragraph of this section states:

> "It is proposed that the trial survey be done from April 1-31, 2007 once a week with revisions made as needed. The survey will start May 31, 2007 and end March 31, 2008. The draft report shall be competed by April 31, 2008. Comments on the draft will be due by May 15, 2008. The final report will be completed by June 15, 2008."

Given our recommended modification to the survey schedule identified above in section 5.5.2.3 *On-Site Surveys*, we recommend that the above paragraph be replaced with the following:

> "It is proposed that the trial survey be done from April 1-31, 2007 once a week with revisions made as needed. The survey will start May 31, 2007 and end *September 30, 2007*. The draft report shall be competed by December 31, 2007. Comments on the draft will be due by January 31, 2008. The final report will be completed by March 1, 2008."

Attachment B *Mason Dam & Upper Powder River Survey*

The first paragraph states:

> "Hello my name is _____ . I am conducting a survey for Baker County to learn more about the recreation use and your visit here to the Mason Dam area. I have a few questions about your visit here."

We recommend that this paragraph be modified to read as follows:

> "Hello my name is _____ . I am conducting a survey for Baker County to learn more about the recreation use and your visit here to the Mason Dam area. *Would you like to participate?"*

This recommended modification, again consistent with accepted practice for surveys, would ensure that participants have given their full consent to participate in the study.

Question 3 states:

"Where are you from (for multiple locations show number of people)?"

We recommend that only the representative of the group give his or her zip code so the zip codes being reported are consistent with the interviews being conducted.

We find that question 12 asks leading and multi-faceted questions that are inconsistent with generally accepted practice for surveys.[3] We suggest these questions be modified as follows:

"What are your opinions regarding:

Adding a powerhouse *structure to the base of the dam?*

Would the addition of a powerhouse *structure at the base of the dam* affect your recreational visits to this area?"

Assess Traditional Cultural Properties

Implementation of this study would obtain the information needed to address issues pertaining to traditional cultural properties (TCPs). However, Commission staff recommends modifications to sections: 6.0 *Introduction;* 6.1 *Goals and Objective;* 6.5 *Proposed Methodology;* 6.6 *Identification of Traditional Cultural Properties;* 6.7, *Products; and 6.8 Level of Effort and Cost.*

The last paragraph of section 6.0, *Introduction* states:

"The APE for this study will include the project boundary as described above. It will also include Phillips Lake and up to 5 meters above the high water mark."

We recommend that this paragraph be modified to read as follows:

"*The survey should be conducted within the APE and* the APE for this *Traditional Cultural Property* study will include the project boundary as described above, *as well as any construction staging areas*. It will also include Phillips Lake and up to 5 meters above the high water mark."

[3] A multi-faceted question combines two or more issues in a single question.

This recommended modification would ensure all locations impacted by the proposed project's construction and operation where TCPs may be located, are surveyed including all potential project construction areas.

During a study plan meeting on December 14, 2006, some disagreement arose regarding the proposed APE. The Commission's proposed APE did not include the reservoir, but the Confederated Tribe of the Umatilla, believed that the APE should include the reservoir. Given the Commission's responsibilities under Section 106 of the Historic Preservation Act, we sent a letter to the Oregon State Historic Preservation Officer (SHPO) on January 24, 2007, requesting concurrence on our proposed APE. By letter filed March 6, 2007, the SHPO responded, stating he did not concur with our designation of an APE for the Mason Dam project that does not include the reservoir. In regards to the Assessment of Traditional Cultural Properties (TCPs), we concur with the Oregon SHPO that TCPs identified around the reservoir may be affected, particularly audibly or visually, as a result of construction and operation of the proposed Mason Dam project. Therefore, we are including the reservoir within the APE for the Assessment of Traditional Cultural Properties. As we discuss below; however, our APE for the *Archaeological and Historic-era Properties* study should not include the reservoir.

The first sentence under 6.1, *Goals and Objectives,* states:

> "The goal of this study is to develop the essential information to address issues pertaining to Traditional Cultural Properties (TCPs) Objectives in support of this goal include:"

To ensure that the study surveys all TCPs, not just those related to tribal interests, we recommend that the sentence be revised to read as follows:

> "The goal of this study is to develop the essential information to address issues pertaining to *tribal and non-tribal* Traditional Cultural Properties (TCPs)."

Bullet number 4 in section 6.5, *Proposed Methodology*, states:

4. "Travel to the project area and conduct oral history interviews with tribal members. All interviewees will be paid a stipend for their participation."

While the gathering of oral histories is an extremely important aspect of the TCP study, standard methodology also calls for field reconnaissance of any TCPs to allow for the identification of any project effects on the TCPs. Also, it is outside the scope of the

Commission's jurisdiction to include language in a study plan that requires an applicant to pay interviewees for their time. We note, however, that Baker County may, of its own choosing, pay interviewees a stipend for their participation. As a result, we recommend bullet number 4 be modified to read as follows:

> 4. "Travel to the project area and conduct oral history interviews with tribal members *and conduct field reconnaissance within the APE."*

Section 6.7, *Products*, states:

1. A confidential oral history report for CTUIR internal use only.
2. A summary report for Baker County, FERC and other agencies as appropriate.
   This document will:
   a. Document for the official consultation record the CTUIR's participation in the process of identifying and evaluation cultural resources associated with the project area that are deemed important to the CTUIR.
   b. Provide a non-confidential summary report of the traditional use data pertaining to the study area.

The report produced under section 6.7 that uses the results from the TCP survey is an important tool for developing mitigation measures and gathering information needed to analyze the proposed project's effects on TCPs in the Commission's National Environmental Policy Act document, consistent with study criteria 5 (inform the development of license requirements). As such, the report should include a summary of project related impacts to cultural resources. We recommend; therefore, that section 6.7 be revised to read as follows:

1. A confidential oral history report for CTUIR internal use only.
2. A summary report for Baker County, FERC, *the Oregon SHPO*, and other agencies as appropriate.
   This document will:
   a. Document for the official consultation record the CTUIR's participation in the process of identifying and evaluation *of* cultural resources associated with the project area that are deemed important to the CTUIR.
   b. Provide a non-confidential summary report of the traditional use data pertaining to the study area.
   c. Provide an ethnographic background of the APE, the results of the study, recommendations for National Register of

Historic Places eligibility, and a description of all project-related impacts to eligible and unevaluated historic resources.

The last paragraph of section 6.8 *Level of effort and Cost* states the following:

"It is proposed this study will begin May 1, 2007 and end November 30, 2007. The draft report will be due on January 31, 2008 with comments on the draft due by February 14, 2008. The final report will be completed on March 1, 2008."

It is the Commission practice to allow agencies, tribes and other interested parties a minimum of 30 days to review applicant prepared work products on which they are expected to comment. As a result, we recommend replacing the above paragraph and schedule with the following:

"It is proposed this study will begin May 1, 2007 and end November 30, 2007. The draft report will be due on *January 15, 2008,* with comments on the draft due by February 14, 2008. The final report will be completed on March 1, 2008."

Assess Archaeological and Historic-era Properties

Implementation of this study would obtain the information needed to address issues pertaining to archaeological and historic-era properties. However, Commission staff recommends modifications to sections: 7.0 *Introductions;* 7.4 *Project Nexus;* 7.5 *Proposed Methodology;* and 7.6 *Level of Effort and Cost.*

The final sentence of section 7.0 states:

"For this study the project boundary as described above will also serve as the APE."

The sentence should be clarified to note that the APE for this study does not include the reservoir. Therefore, we recommend that the sentence be revised to read as follows:

"*The survey should be conducted within the APE and the APE for the Archeological and Historic-era Properties study will include* the project boundary, as described above *(exclusive of the reservoir), as well as any construction staging areas.*"

We recommend this clarification in the APE because, as stated by the Bureau of Reclamation, Baker County will have no control over the water flows through the project nor will Baker County have any control over water level fluctuations in the reservoir; therefore, any cultural resource sites impacted by water level fluctuations along the Philips Reservoir shoreline could not be potentially impacted by the Mason Dam project.

As discussed above, the Confederated Tribes of the Umatilla Indian Reservation believes the APE should include the reservoir. Therefore, given the Commission's responsibilities under Section 106 of the Historic Preservation Act, we sent a letter to the Oregon SHPO on January 24, 2007, requesting their concurrence on our proposed APE. On March 6, 2007, the Oregon SHPO filed a letter in response, stating he did not concur with our designation of an APE for the Mason Dam project that does not include the reservoir. While we maintain that the APE for this study should not include the reservoir, we believe that there are some misunderstandings regarding our proposed APE for the project. As such, we are continuing our consultation with the Oregon SHPO's office. If the continued consultation results in our determination that changes need to be made to the APE for the assessment of Archaeological and Historic-era Properties, then we will amend the APE within 45 days of the date of the Study Plan Determination.

The last paragraph in Section 7.5, *Proposed Methodology*, states:

> "A preliminary report identifying any discovered sites should be completed. The report should be reviewed by Baker County and all related parties. Based on consultation regarding the preliminary report, the parties should determine if a more intensive field survey is necessary."

The cultural resource report produced under section 7.5 that uses the results of the Archeological and Historic-era Property survey is an important tool for developing mitigation measures and gathering information needed to analyze the proposed project's effects on archeological and historic-era properties in the Commission's National Environmental Policy Act document, consistent with study criteria 5 (inform the development of license requirements). In addition, the study should indicate that all interested parties, including the Commission, the Oregon SHPO, the Forest Service, Reclamation, CTUIR, and any other interested party or Native American Tribe, need to be consulted when deciding whether a more intensive archeological survey is needed. We recommend, therefore, that the last paragraph in section 7.5 be revised to read as follows:

> "A preliminary *Cultural Resources* report identifying any discovered sites and including all the information necessary to satisfy the objectives

listed under section 7.1 (Goals and Objectives**)** should be completed. *The report should include a prehistoric and historic background of the APE, the results of the archeological survey, recommendations for NRHP eligibility, and a detailed description of any anticipated project effects on the identified archeological and historic-era properties.* The report should be reviewed by Baker County, *the Commission, the Oregon SHPO, the Forest Service, Reclamation, CTUIR, and any other interested party or Native American Tribe*. Based on consultation regarding the preliminary report, the parties should determine if a more intensive field survey is necessary."

The last paragraph of section 7.6 *Level of effort and Cost* states the following:

"It is proposed this study will begin May 1, 2007 and end November 30, 2007. The draft report will be due on January 31, 2008 with comments on the draft due by February 14, 2008. The final report will be completed on March 1, 2008."

It is the Commission practice to allow agencies, tribes and other interested parties a minimum of 30 days to review applicant prepared work products on which they are expected to comment. As a result, we recommend replacing the above paragraph and schedule with the following:

"It is proposed this study will begin May 1, 2007 and end November 30, 2007. The draft report will be due on *January 15, 2008,* with comments on the draft due by February 14, 2008. The final report will be completed on March 1, 2008."

Hydrology and Stream Flow Analysis

The purpose of this study is to help determine how proposed project operations could potentially affect stream flows and ultimately the aquatic habitat below Mason Dam. The agencies requesting the study acknowledged that the information was to be gathered from existing sources. Specifically, the Oregon Department of Fish and Wildlife requested the following existing information:

- Daily average flow by month, presented as an average of all years pre and post Mason Dam construction
- Daily average flow by month for the lowest water year on record
- Daily average flow by month for the highest water year on record

- Hourly flow releases from the dam for a typical and extreme 24-hour period during each month of the year to depict existing ramping conditions
- Average monthly flow for each year before Mason Dam was constructed
- An average monthly flow foe reach year since Mason Dam was constructed
- Lowest average monthly flows for each month
- Highest average monthly flows for each month

With its revised study plan, Baker County provided the following existing information:

- Daily average flow by month, presented as an average of all years for Post Mason Dam construction.
- Average monthly flow for each year since Mason Dam was constructed. Average flow for all years by month.
- Average flow for all years by month (graphical representation)

Although Baker County has not provided all of the requested information with their revised study plan, the agencies' purpose for requesting the said information was to aid in the determination of effects of the proposed project on stream flows and ultimately the aquatic habitat below Mason Dam. However, we note that the U.S. Bureau of Reclamation's letter filed on October 17, 2006, states that Baker County will not be able to influence or alter the streamflow releases from Mason Dam or operations of Phillips Reservoir.

In light of the Bureau's letter, Commission staff finds that Baker County has provided adequate information regarding streamflow releases below Mason Dam.

Bull Trout and Redband Trout at upper confluence of Phillips Reservoir and Fish Entrainment Studies

The Oregon Department of Fish and Wildlife, the Fish and Wildlife Service and the Forest Service requested a study to evaluate bull trout and/or redband trout use of Phillips Reservoir and the potential for their entrainment. The Oregon Department of Fish and Wildlife also requested an entrainment study to evaluate current levels of entrainment at Mason Dam. To address these study requests, Baker County proposed two alternative studies. However, Baker County also proposed to retrofit a fish screen on Mason Dam's intake in lieu of performing the requested or proposed studies.

Below, Commission staff evaluates the appropriateness of screening the Mason Dam intake in lieu of conducting the requested studies as proposed by Baker County.

Our Evaluation

Baker County proposes to install a hydroelectric turbine at the base of Mason Dam, where previously there was none. The introduction of a turbine represents an increased probability of injury to aquatic species, including fish. With the addition of a turbine, fish entering Mason Dam through the intake in Phillips Reservoir risk injury or death via turbine blade strikes. A fish screen can reduce this risk significantly by preventing fish from entering the intake, and therefore, preventing contact with turbine blades.

The upper Powder River watershed, including Phillips Reservoir, is home to two special status fish species; the Forest Service sensitive and the Oregon State's species of special concern, the redband trout (*Onchorhynchus mykiss gibbsi*), and the federally-listed threatened bull trout (*Salvelinus confluentus*). Redband trout are found to be widespread and abundant in both the upper Powder River and Phillips Reservoir, and exhibit a resident life-history (Kostow, 1995). Buchanan *et al*. (1997) identified three tributaries of the upper Powder River (Lake Creek, Cracker Creek, Silver Creek), all located upstream of Phillips Reservoir,[4] as containing spawning, rearing, and/or resident adult bull trout. There are no known physical barriers between these tributaries and Phillips Reservoir that would prevent bull trout from utilizing Phillips Reservoir.[5] In March 2005, the Fish and Wildlife Service issued a Biological Opinion for the Bureau of Reclamation's (Reclamation) operations and maintenance on several structures in the Snake River Basin, including Mason Dam. With the absence of a turbine and the current exhibition of a resident life history pattern of the upper Powder River watershed's bull trout, the Fish and Wildlife Service was able to determine that the Reclamation's operations and maintenance at Mason Dam were "not likely to adversely affect" the federally listed bull trout (USFWS, 2005).

Bull trout display one of two life-history forms; resident or migratory. Resident forms of bull trout reside year-round in headwater streams, and exhibit relatively little movement (Nelson *et al.,* 2002). Conversely, migratory forms reside as adults in larger rivers (fluvial), or in lakes (adfluvial) and migrate to small headwater streams to spawn (Nelson *et al.,* 2002). To date, only resident life forms of bull trout have been documented in the Powder River watershed (USFWS, 2005). However, several studies have indicated that bull trout can display plasticity in their phenotypic expression of resident or migratory life-history forms (Nelson *et al.*, 2002; Rieman and McIntyre,

[4] Lake Creek is a tributary to Deer Creek. The mouth of Deer Creek is located at Phillips Reservoir.

[5] Letter from U.S. Fish and Wildlife Service filed January 8, 2007.

1993). Therefore, any given generation of the threatened resident bull trout of the upper Powder River watershed could display fluvial or adfluvial migratory form and subsequently utilize the Powder River and/or Phillips Reservoir during the mature stage of ontogeny.

Construction of the proposed project will add a powerhouse to the Mason Dam Complex, potentially introducing a new source of mortality to entrained fish. The installation of a fish screen on the Mason Dam intake structure, as proposed by Baker County, will prevent entrainment of bull trout; thereby preventing "take" of bull trout pursuant to the Endangered Species Act (ESA). Subsequently, all fish populations, including the Redband trout, located upstream of Mason Dam would also benefited from the inclusion of a fish screen on the Mason Dam intake.

Therefore, for the protection of redband trout populations and more importantly, to prevent "harm" or "take" of bull trout due to the proposed project operations, Commission staff finds that given the existing information on the presence of bull trout and redband trout in the project area, screening of the Mason Dam intake would negate the need for the requested studies. Therefore, in light of this information, we find that implementation of studies that would evaluate bull trout and/or redband trout use of Phillips Reservoir or assess the current levels of entrainment would be unnecessary at this time. However, in the event that Baker County eliminates the construction and installation of a fish screen from their proposal, or is unable to implement the proposal, Commission staff will re-evaluate the need for this additional information.

Finally, we note that in response to Baker County's proposal, in their letter filed on January 8, 2007, the Forest Service stated: "[we are] not opposed to the idea of constructing an exclusionary screen on the Project outlet in lieu of an entrainment study if this is acceptable to ODFW and the USFWS and if the screen is built to NOAA and ODFW specifications for fish protection." The Fish and Wildlife Service also stated their support for Baker County's proposal to screen the intake to Mason Dam in their letter filed on January 8, 2007. The Oregon Department of Fish and Game indicated in their February 22, 2007 letter, that they may waive the need for the requested studies if they were to obtain a formal agreement with Baker County on the screening of the intake.

Salmonid Spawning and Juvenile Density Survey

The Oregon Department of Fish and Wildlife and the Forest Service requested this study to obtain information specifically on spawning salmonids in the Powder River downstream of Mason Dam. The Oregon Department of Fish and Wildlife intend for this study to: (1) obtain information about the location, quality and use of spawning habitat by salmonids; and (2) obtain information on salmonid presence, density, age, growth, and

habitat condition. The Forest Service intend for this study to: (1) quantify redband population and distribution in contrast to other salmonids: and (2) to obtain information about redband trout habitat quality.

In their letter filed on January 8th, 2007, the Oregon Department of Fish and Game state: "*there is little data available on the status and distribution of redband trout in the Powder River below Mason Dam. Little information also exists regarding river habitat use by juvenile or adult redband trout (Onchorhynchus mykiss) in the mainstem Powder River below Mason Dam.*" However, while understanding of the distribution and ontogenetic habitat use by native redband trout in the Powder River may be lacking, Kostow (1995) clearly indicates that in the project area, the redband trout species complex is in good condition, describing individuals as "widespread and abundant" in both Phillips Reservoir and the Powder River. Furthermore, the presence of native redband trout indicates that spawning does occur, and suitable habitat exists in the Powder River downstream of Mason Dam.

The Oregon Department of Fish and Wildlife address project nexus in regards to their requested study (Study Criteria No. 5) by stating that: (1) staging of project construction materials may impact aquatic habitat; (2) the location of the proposed powerhouse may change streamflow patterns, resulting in erosion and increased turbidity downstream; (3) there is a potential for the release of contaminants during project operations to the Powder River. The Forest Service echos these concerns, and relies upon project construction activities as a basis for a determination of project nexus. We note that each of the four concerns identified above are acknowledged impacts associated with the construction and operation of a hydroelectric project, and will be addressed appropriately in the environmental document that will recommend environmental measures to adequately protect aquatic resources.

We conclude that the existing information provided by Kostow (1995) is sufficient to determine the presence of native redband trout downstream of the project. We fail to see how the more detailed information that would be provided by the Oregon Department of Fish and Wildlife's or the Forest Service's requested studies would help further inform license requirements that may be developed to protect downstream aquatic resources from potential impacts of project construction and operation activities. Therefore, the Oregon Department of Fish and Wildlife and the Forest Service's study requests are inconsistent with Study Criteria 4 (*Describe existing information concerning the subject of the study proposal, and the need for additional information*) and Study Criteria 5 (*Explain any nexus between project operations and effects on the resource to be studied, and how the study results would inform the development of license requirements*). As a result, we do not recommend that Baker County implement the requested study.

Literature Cited

Buchanan, D.M., M.L. Hanson, and R.M. Hooton. 1997. Status of Oregon's bull trout. Oregon Department of Fish and Wildlife, Portland, Oregon.

Kostow, Kathryn. 1995. Biennial report on the status of wild fish in Oregon. Oregon Department of Fish and Wildlife, Portland, Oregon.

Nelson, M.L., T.E. McMahon, and R.F. Thurrow. 2002. Decline of the migratory form in bull charr, *Salvelinus confluentus*, and implications for conservation. *Environmental Biology of Fishes* 64: 321-332.

Rieman, B.E., and J.D. McIntyre. 1993. Demographic and habitat requirements of bull trout. General Technical Report INT-302. U.S. Forest Service, Intermountain Research Station, Boise, Idaho.

U.S. Fish and Wildlife Service. 2005. Biological opinion for Bureau of Reclamation operations and maintenance in the Snake River Basin above Brownlee Reservoir. Snake River Basin Office, Boise, Idaho.