

Proposed Study Plans  
Alternative Study Plans  
Studies Not Proposed

Mason Dam Hydroelectric Project  
FERC No. 12058-002



*In accordance with 18 CFR § 5.11*

Prepared by  
**Baker County**

October 2006

## INTRODUCTION

Baker County, as applicant for the Mason Dam Hydroelectric Project (Project No. P-12058-002) is pleased to be working with the Federal Energy Regulatory Commission (FERC), other public agencies and interested stakeholders in the Integrated Licensing Process. This project appears to present a win-win scenario to all stakeholders and we believe can be held up as an example of how a collaborative process can bring great projects to fruition.

A thorough understanding of the project is essential to achieving the goals and objectives of each study proposal and ultimately the viability of the project. We will attempt to summarize the salient points in the following bullets.

- a) This project is run of the river. This project will not effect water levels in the reservoir or water levels downstream from the dam. When Baker Valley Irrigation District releases water for any purpose we can use it for generating power. If they do not release water from Mason Dam, we can not request water. We will not be changing water flow or quantity with this project.
- b) Two small turbines will be housed in a powerhouse at the base of Mason Dam. This is a disturbed area with little vegetation and can be blended in with the surrounding area.
- c) The power will be sent to an existing Idaho Power Company transmission line approximately one mile south of the Mason Dam site. The power line from the project to the transmission line will be underground and the proposed route is up the Black Mountain Road right of way. The entire route of the power line will be over ground that has been disturbed and should have limited impact to all resources.
- d) The project will be constructed within a limited time window. Construction will be done in the October to March window when the flows from Mason Dam are at a minimum.
- e) This project is subject to Oregon Division of State Lands in stream work windows and bound by rules and regulations that protect water and other resources.
- f) This is a public project. Baker County currently has Memorandum of Understandings with most public agencies and enjoys good working relationships with all of them. We believe that this framework will allow all stakeholders to come to agreement on the scope of the project and the nexus points that need to be addressed.

## **BRIEF HISTORY OF THE PROJECT**

Baker County began investigating this project over four years ago with the application for a preliminary permit. We have held a number of public meetings and have vetted this proposal in many different ways. The recent energy crisis, which has included severe drought in the West, high oil and natural gas prices and the general awareness of state and national policy for additional renewable energy have heightened the awareness of this project. This has become what is known as a “White Hat Project” because it achieves the goal of supplying renewable energy, helps with local and national energy independence, does not significantly impact the environment and has support from broad based citizen groups.

Initially, this project was put forth by strong advocates of our environmental community. They saw the benefits of an environmentally friendly, renewable energy supply and a way to use less fossil fuels. Our agriculture and resource based folks were slower to come to the table. Their issues revolved around cost of the project, risks to taxpayers and effects of quantity of water if the rules were changed to make electricity generating a priority over irrigation. Through many different forums, most groups are now on board and actively supporting the project. The biggest issue relating to this project in the eyes of Baker County are the costs of environmental and licensing. All other costs can be estimated to relatively hard numbers. We look forward to trying to quantify the costs for studies.

## **PROJECT BOUNDARIES**

Baker County believes that the project boundary is an extremely important element in the licensing process. They are as follows:

- 1) Mason Dam. The area which was built that holds back the water.
- 2) The intake valve. The area surrounding where the water is diverted from the reservoir, through the dam and subsequently released into Powder River below the dam.
- 3) The proposed underground powerline easement. This would be the actual area that the powerline would travel.
- 4) The Powerhouse and discharge into Powder River. This would be the area where the powerhouse would be constructed and then the area in the vicinity of the Powder River where the water from the turbines would return to the River.
- 5) The Substation and hookup to the IPC transmission line.

- 6) The construction staging area. This area, which we believe will be in close proximity to the Dam, would be in a area already disturbed by human activity

With the project boundary set with the above criteria, Baker County recognizes that there is a need for potential work with agencies over wildlife issues in the surrounding areas. We believe that as all stakeholders work on these issues we can formulate effective study plans and potential mitigation agreements that enhance these valuable resources.

Additionally, Baker County recognizes the agencies attempt to have baseline data on all resources in the area. All stakeholders agree that at the present time Mason Dam acts as a barrier to fish movement at least moving upriver. With that being said, the major fish issue remaining is the possible mortality of fish passing downstream through the existing valve waterway versus passing through a turbine. The need for this information appears critical. We welcome a discussion of how this can be accomplished.

### **PROPOSED STUDY PLANS, ALTERNATIVE PLANS AND JUSTIFICATION TO STAKEHOLDER STUDY REQUESTS.**

The Baker County Mason Dam Hydroelectric Project, FERC No. 12058-002, submit their proposed study plans in accordance with the Federal Energy Regulatory Commission (FERC) regulations at 18 CFR. This document includes proposed studies that respond directly to requests submitted by agencies, alternatives to requested studies that speak to the subjects sought to be studied but are adapted in light of controlling factors, including FERC requirements; and explanations of why certain proposed studies are not necessary.

The following is the response of the licensee to each of the requested studies. The document is divided into three sections, with an appendix of the full text of the study requests. Each section is described below.

#### **Section 1: Proposed Study Plans**

The studies included in this section respond directly to a study request submitted by a resource agency or FERC. The proposed study plans are generally structured to collect and provide the requested data in the manner reflected in the original study request with certain modifications in some instances. In several cases, studies requested from different entities mirrored each other or differed only with respect to one or more components. In these cases, the licensee combined the study requests to address the objectives of each requesting entity. The studies proposed in this are:

- Dissolved Oxygen and Temperature Assessment
- Vegetation, Rare Plant, and Noxious Weed Assessment
- Threatened, Endangered and Special Status Species Assessment
- Fish Entrainment Study

## **Section 2: Alternative Study Plans**

The studies or actions in this section are crafted to address the objectives identified in the resource agency or FERC study request, but propose that the requested objective or analysis be achieved through evaluating a different set of data or that a methodology other than that included in the study request be employed because it is better suited to meet the requested study objective. These proposed studies or actions are:

- 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

## **Section 3: Studies Not Proposed**

- Visual Quality
- Salmonid Spawning and Juvenile Density Study

## **PROPOSED STUDY PLAN MEETING**

The licensee has scheduled a meeting to discuss the proposed study plans with FERC, the resource agencies, the tribes and other interested stakeholders for November 8<sup>th</sup>, 2006, starting at 9:00 am at the Baker County Courthouse (1995 3<sup>rd</sup> Street, Baker City, Oregon). An agenda for the meeting will be posted to the Baker County website at [www.bakercounty.org](http://www.bakercounty.org) and sent to interested parties via email. Additional meetings have not been scheduled. Any additional meetings will be confirmed in consultation with FERC, resources agencies, the tribes and other interested stakeholders.

Baker County would like to thank you for your interest in the Mason Dam Hydroelectric Project and looks forward to discussing the proposed study plans with all stakeholders.

## **Proposed Study Plans**

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## **STUDY PLAN 1: DISSOLVED OXYGEN, WATER QUALITY AND TEMPERATURE ASSESSMENT**

### *1.1 Goals and Objectives*

These studies were requested by the Oregon Department of Environmental Quality (ODEQ) and FERC. They contain requests for much of the same information and have been combined.

The goal of this study is to evaluate 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 objective of this proposed study is to define a baseline condition that will provide for a better understanding of the potential for project-related effects, and possible mitigation strategies. Specifically, the objectives of the study are to:

1. Identify the dissolved oxygen and temperature profile within Phillips Reservoir, in the vicinity of the Mason Dam intake.
2. Identify the DO concentration of water entering the Mason Dam intake at its approximate depth and vicinity.
3. Describe any temporal variations of DO concentration and temperature.
4. Identify and describe reservoir stratification.
5. Describe the DO concentration of water in the stilling basin immediately below Mason Dam.
6. Describe the attenuation of DO in the Powder River downstream of Mason Dam.

Work with ODEQ on developing a Section 401 application. We will consider Section 303 (water quality standards and implementation plans) in applying for a 401-certification evaluation for the FERC license.

As the parameters and specifics of the project are finalized, Baker County will work with ODEQ staff on the necessary studies to achieve 401 Certification.

Construction activities associated with the building of the Project will be ‘best management practices’ as identified by consensus of all resource agencies.

### *1.2 Relevant Resource Management Goals*

Adequate concentrations of dissolved oxygen are required by aquatic organisms for subsistence, and are therefore essential to the integrity and sustainability of a healthy ecosystem.

Ensuring that the effect of the project construction and operation pertaining to this resource is considered in a reasoned way is relevant to the Commissions public interest determination.

401 Certification with the State of Oregon is mandated by federal and state laws and guidelines. Baker County is a public entity and as such is bound by best management practices and the preservation of all natural resources.

### *1.3 Background and Existing Information*

The project does not propose changing the intake point for water from Mason Dam. The effect on water quality should be minimal but baseline data is lacking for possible effects to the project. This data will be needed in order to receive 401 certification from ODEQ.

### *1.4 Project Nexus*

Water quality issues do fall within the Project boundary. Currently, water releases made from Mason Dam are drawn from the hypolimnetic region of Phillips Reservoir. The water released from Mason Dam demonstrates high levels of kinetic energy as demonstrated by its extremely turbulent nature. Turbulence increases the surface area of water, allowing for greater assimilation of atmospheric gases (including oxygen) into the water. Project-related actions, such as the installation of a turbine, will harness the kinetic energy of the water, thereby reducing the turbulence of water entering the stilling basin. This will result in a reduction in the amount of surface area, limiting the water's ability to dissolve oxygen into solution. If water in the vicinity of the intake structure within Phillips Reservoir has a low dissolved oxygen content, operation of the project could result in the pertetuation of low DO waters downstream of Mason Dam; Potentially resulting in biological consequences. Since the project's intake system will remain the same, little impact to temperature and thermal stratification are anticipated.

The dissolved oxygen study will help establish a baseline condition for the system in question, and form the basis for inclusion of potential license articles to protect the water quality of the Powder River downstream of Mason Dam. All other water quality studies as identified by ODEQ to achieve 401 Certification will result in sound water quality baselines and results.

### *1.5 Proposed Methodology*

Baker County proposes to use generally accepted practices in the scientific community and in consultation with all agencies to assure water quality issues are addressed.

#### Dissolved oxygen study

1. Monitor and record dissolved oxygen concentration and water temperature at the approximate location (within a radius of 10 meters) of the Mason Dam intake within Phillips Reservoir.

Temperature and DO measurements should begin one meter below the surface of Phillips Reservoir, with subsequent measurements taken every meter, terminating at the approximate depth of the Mason Dam intake structure. Sampling should take place at least once a week, beginning on July 1<sup>st</sup> and ending on October 1<sup>st</sup>. During each sampling event, reservoir surface elevation should be recorded.

2. Monitor and record the concentration of dissolved oxygen at 4 sites downstream from Mason Dam, on the Powder River. Timing of river sampling should coincide with Phillips Reservoir sampling efforts. The first sampling site should be located within the Mason Dam stilling basin. Each subsequent sampling site should be located longitudinally downstream from the first sampling site, and at approximately equidistant intervals. The final site should be located at the USFS boundary. Exact sampling locations within the specified framework should be chosen at random, using a scientifically accepted method. The habitat type of each sampling location should be identified and recorded.
3. Prepare a report that includes an analytical summary and graphical representations of the data from the above studies, including average temperature and dissolved oxygen concentration with associated measures of confidence. The report should include a histogram of depth, temperature and dissolved oxygen within Phillips Reservoir and a graphical representation of any changes of these components over time. Similarly, the report should include a histogram of river distance and dissolved oxygen content, and a graphical representation of any changes of this component over time. All data points used to develop the report should be included within an appendix to the report.

The methodology for 401 Certification and ODEQ approval have yet to be determined. Baker County will work with ODEQ and FERC to identify potential studies.

### *1.6 Level of Effort and Cost*

Baker County will work with all agencies to tie together, when possible, all studies effecting water and fish issues.

The estimated cost of dissolved oxygen and temperature assessment work is approximately \$6400. The study should be completed within one year. When this study will be performed will be determined after consultation with all involved agencies. It is expected to take one or two technicians four or five hours per week, for approximately 12 weeks to conduct the fieldwork. Report preparation should take a biologist a half workday.

The cost of 401 Certification and level of studies are to be determined.

## **STUDY PLAN 2: Vegetation, Rare Plant and Noxious Weeds**

These studies were requested by FERC and US Forest Service. In consultation with US Fish and Wildlife and the Oregon Dept. of Fish and Wildlife these issues also arose.

### *2.1 Goals and Objectives*

The goal of this study is to evaluate the effects of project construction, operation and maintenance and other related activities on the distribution and composition of botanical resources, including wetland and riparian habitats, rare plants, and noxious weeds, in the project area. The objectives of the study are to:

1. Identify, describe, classify, land map vegetation cover types in areas affected by project construction, operation and maintenance.
2. Determine the extent and relative quality of wetlands and riparian habitat in the tailrace, along the Powder River and in areas that would be affected by project construction, operation and maintenance.
3. Determine the presence and distribution of rare plants and noxious weeds within the influence of project construction, operation and maintenance activities.
4. Identify project related actions that may influence the distribution of wetlands, riparian habitat, rare plants and noxious weeds.

The project is proposed to work primarily in areas that have previously been disturbed. The goal to protect vegetation and rare plants and to control noxious weeds can be accomplished with a compilation of known and gathered data.

### *2.2 Relevant Resource Management Goals*

All resource agencies are responsible for the protection of sensitive or threatened and endangered species.

In making its license decision, the Commission must equally consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power generation. Any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway for all beneficial public uses.

Wetlands, riparian habitat, rare plant communities, and invasive and noxious weeds are resources of particular interest because of their rarity and/ or ecological functions. Ensuring that environmental measures pertaining to these resources are considered relevant to the Commission's public interest determination.

Control of noxious weeds is a priority in Baker County and we have a Weed Department that works with all resource agencies to formulate plans and control noxious weeds.

### 2.3 *Background and Existing Information*

Information on wildlife and botanical resources in the PAD includes:

1. A list of federally designated and special status species that have been documented or may occur in the Wallowa-Whitman National Forest or Powder River Subbasin.
2. A list of state and federal special status plant species found in the Upper Powder River Subbasin.
3. A list of wildlife species that could be located in the Upper Powder River Watershed.
4. A map of wetland and deep water habitats in the State of Oregon.
5. A list of noxious weeds designated in the Baker County Noxious Weed Rating System.

While this information is useful in narrowing the scope of the requested studies, we agree that an assessment of the area within the project boundary is necessary. As the project boundary and work area are all to be contained within previously disturbed areas, assessment for special status species, rare plants, wetlands and other types of vegetation can be accomplished in a cost effective manner. The issues associated with invasive and noxious weeds will be mitigated with effective baseline data, revegetation of disturbed areas and control of post construction weeds during the life of the project. Baker County intends to work with all agencies to identify and mitigate these issues.

### 2.4 *Project Nexus*

Project related activities, especially ground disturbing activities, related to construction of powerhouse, power lines and substation, could adversely affect wetland and riparian habitats and their associated wildlife and botanical resources. These could include special status species, and rare plant communities, through direct loss, disturbance or habitat alterations. If potential effects on these resources are identified, environmental measures may be developed to reduce or eliminate these effects. Baker County agrees that there is a project nexus within close proximity to the Project Boundary.

### 2.5 *Proposed Methodology*

Using generally accepted practices in the scientific community:

1. Identify, classify, and delineate on a map, major cover types within 100 feet of the powerhouse, substation, power line and staging area. Ground surveys and visual assessment will be used to identify and map the cover types.

2. Ground-truth the mapping efforts, record all wildlife observed and any noxious weeds or special status plants observed during survey efforts. Record and map the extent of all wetlands, rare plant species, and noxious weeds identified during survey efforts.
3. Describe each cover type by species composition, successional stage, and aerial extent (acreage). Wetland classifications should distinguish the degree of inundation (seasonally flooded, permanently flooded).
4. 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 riparian and wetland habitats (and species dependent on these habitats), rare plants, and noxious weeds.

Alternatively, based on collaboration with affected resource agencies, parts of this study could be achieved by doing a limited study for the potential for disturbing vegetation and rare plants. This would be a cost effective way of assessing heavily disturbed areas, which would be easy to identify any species of concern.

#### *2.6 Level of Effort and Cost*

A literature review to obtain information on rare and special status species will need to be done. The mapping and survey efforts can be completed within one year.

Technicians would be expected to spend approximately one to two days to assess and review ground vegetation. With the relative low acreage of the project boundary and working in disturbed areas, aerial photos would be of little use. Baker County intends to contract with local agency personnel to do the appropriate mapping, assessment and report preparations.

### **STUDY PLAN 3: THREATENED, ENDANGERED AND SPECIAL SPECIES ASSESSMENT**

These studies were requested by FERC. In consultation with US Fish and Wildlife, US Forest Service and Oregon Department of Fish and Wildlife these issues also arose.

#### *3.1 Goals and Objectives*

The goal of this study is to evaluate the effects of project construction and other related activities on federally threatened, endangered or candidate species in the project area. The objectives of the study are to:

1. Identify, describe, classify, and map any appropriate habitat for threatened, endangered and special status species in areas affected by project construction and operation.
2. Determine the presence and distribution of threatened, endangered and special status species within the influence of project construction and operation; specifically, active bald eagle nest, wintering and forage areas, and presence of Columbia spotted frog.
3. Identify project-related actions that may influence the distribution of threatened, endangered and special status species or their habitat and measures that may be taken to protect, mitigate, or enhance habitat.

The project boundary does not include known eagle nesting area. Baker County will work with relevant resource agencies to schedule construction times to be outside of bald eagle nesting times.

#### *3.2 Relevant Resource Management Goals*

All resource agencies are responsible for the protection of sensitive, threatened and endangered species. In making its license decision, the Commission must equally consider the environmental, recreational, fish and wildlife and other non-developmental values of the project, as well as power generation. Any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway for all beneficial public uses.

Threatened, endangered and special status species are of particular interest because of their rarity and ecological functions. Ensuring that environmental measures pertaining to these resources are considered in a reasoned way is relevant to the Commission's public interest determination. Additionally, this information is needed to ensure compliance with the Endangered Species Act.

### 3.3 *Background and Existing Information*

Information on wildlife and botanical resources in the PAD include:

1. A list of federally designated and special status species that have been documented or may occur in the Wallowa-Whitman National Forest or Powder River Subbasin.
2. A list of state and federal special status plant species found in the Upper Powder River Subbasin.
3. A list wildlife species that could be located in Upper Powder River Watershed.
4. A map of wetland and deep water habitats in the State of Oregon.
5. A list of noxious weeds designated in the Baker County Noxious Weed Rating System.

While this information is useful in narrowing the scope of the requested studies, we agree that an assessment of the area within the project boundary for threatened and endangered is necessary. The bald eagles in the Phillips Lake area are currently managed under the Phillips Reservoir Bald Eagle Management Area (BEMA) plan by the US Forest Service. This plan requires:

1. The protection and maintenance of the nest tree and surrounding stand.
2. The protection and maintenance of all known perch trees, and future perch trees with a zone from the high water line to at least 200' upslope from the high water line around the reservoir.
3. Prey populations be monitored (if FS funds are used).
4. Fish habitat be protected and improved by maintaining a diverse fishery that includes game fish and non-game fish in substantial numbers.
5. Waterbird populations be protected and improved by maintaining and installing nesting structures.
6. Public use of the area is monitored and measures are taken to control activities that disturb eagles or their habitat.

Baker County intends to adhere to the Phillips Reservoir BEMA plan and assess the effects of the project on Eagle nest sites. We believe that the timing of the construction and the project covering disturbed ground can mitigate most issues.

### 3.4 *Project Nexus*

Project related activities, especially ground disturbing activities, related to construction of powerhouse, power lines and substation, could adversely affect wetland and riparian habitats and their associated wildlife and botanical resources. These could include threatened, endangered and special status species. If potential effects on these resources are identified, environmental measures may be developed to reduce or eliminate these effects. Baker County agrees that there is a project nexus within close proximity to the Project Boundary.

### 3.5 *Proposed Methodology*

Using generally accepted practices in the scientific community:

1. Identify, classify and delineate on a map any suitable habitat for any threatened or endangered species that could potentially occur in the project area within 100' of the proposed project boundary.
2. If suitable habitat exists, survey for direct or indirect indicators of species presence.
3. Specifically, for 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.
4. Assess bald eagle activity in the vicinity of the project using pre-existing studies and map any direct or indirect observations.
5. 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, Columbia spotted frog or other threatened, endangered and special status species.

Baker County intends to work cooperatively with all relevant resource agencies to effect full protection for all threatened, endangered and special status species.

### 3.6 *Level of Effort and Cost*

The estimated cost of this work is approximately \$7200, depending upon the level of information that might be obtained from existing sources and the Vegetation, Rare Plant and Noxious Weed Assessment, which may show suitable habitat for Columbia spotted frog and other threatened, endangered and special status species. The mapping and survey efforts can be completed within one year.

One biologist would be expected to spend approximately one or two days to review existing information from all relevant resource agencies. Baker County will work with all relevant resource agencies to tie together, when possible, all studies effecting water, fish and wildlife issues and studies.

**STUDY PLAN 4: FISH ENTRAINMENT STUDY**

This study was requested by the Oregon Dept. of Fish and Wildlife.

*4.1 Goals and Objectives*

An entrainment study is necessary to provide data for ODFW to quantify the impacts of Project operations on native game fish. ODFW will use this information to make recommendations as to whether the project and any mitigation will result in no net loss to native game fish populations. ODFW will also use this information to determine the need for fish screens and to develop and implement strategies for fish management.

*4.2 Relevant Resource Management Goals*

Proposals and construction of new hydroelectric projects in the State of Oregon are subject to state regulation. ORS 543 governs new projects and sets minimum standards for development of hydroelectric projects. A new project can not be approved by the state if the project will a net loss of wild game fish, unless the losses are mitigated. ODFW considers information on downstream fish passage to be important for concluding whether the applicant can construct the project to meet the minimum standards for developing hydroelectric power in Oregon.

*4.3 Background and Existing Information*

Currently no information exists on entrainment of fish from the reservoir into the stream below the dam. ODFW will require this information to assess the potential impacts of Project operation, and to determine whether the Project can be constructed and operated consistent with state law.

*4.4 Project Nexus*

This study directly impacts the project scope and boundary.

*4.5 Proposed Methodology*

A description of the design and specifications relevant to dam operations (e.g., design and specifications for regulating outlets) will need to be provided. Information on fish distribution and abundance in the reservoir can be used to characterize fish populations for the purposes of evaluating their potential entrainment during downstream migration under current conditions.

Two methods of study have been proposed:

1. Alternative 1: Sample and insert PIT tags in large juvenile and adult fish in the reservoir, and monitor downstream passage with a passive monitoring system installed below the dam.
2. Alternative 2: Sample and tag large juvenile and adult fish in the reservoir. Operate a rotary screw trap in the Powder River below Mason Dam to capture and sample outmigrating and entrained fish.

Baker County intends to consult with ODFW on what method supplies the greatest amount of data while still being cost effective.

#### *4.6 Level of Effort and Cost*

The cost of these studies will need to be determined. It is anticipated that this study should begin in the spring and continue through fall, with the results reported by the end of December. Baker County will continue to collaborate with ODFW to finalize study plans.

## **Alternative Study Plans**

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## **ALTERNATIVE STUDY PLAN 5: RECREATION VISITOR SURVEY AND USE STUDY**

This study was requested by FERC.

### *5.1 Goals and Objectives*

The goal of this Recreation Visitor Survey and Use Study is to obtain additional information regarding utilization, including activity types and locations in the proposed project area around Mason Dam, as well as utilization of the developed recreation access areas located below the dam. Information should also be obtained to determine amount of usage of access routes to recreation areas within the project area.

Information gathered would be used to estimate average weekday, weekend day and holiday recreational use along Black Mt. Road as well as at the developed recreation access areas below the dam. Surveys would be employed to gather information about visitors' recreation activities and attitudes in the project area. This information should be collected during the period representative of any proposed construction period.

### *5.2 Relevant Resource Management Goals*

Construction operations and staging may displace recreation visitors within the proposed project area. Reasonable consideration of the effect of project construction and operation pertaining to recreational access and opportunities in the area is in the public interest.

Baker County maintains a road system throughout the county that is used for the local population as well as tourists and other recreational visitors. Black Mt. Road accesses homes within the area and construction of the powerline in the road area is a concern. It is anticipated that the road will not be closed during construction, though one way, flag car passage may be required. Baker County will comply with standard local and state rules and regulations to work around the construction project.

Tourism and visitor recreation area stated goal of the Baker County Economic Strategic Plan. We believe that the limited construction window for the road work and staging below the dam can be mitigated with minimal studies.

### *5.3 Background and Existing Information*

No data exists specifically for the Project Boundary area. This area is part of the Phillips Lake recreation area. The major impact of the powerline project aside from local residential traffic would be the construction during deer and elk hunting season. Baker County intends to do the work on the powerline outside of existing deer and elk hunting season.

Forest Service personnel have a great deal of knowledge of the use of the undeveloped parking area below Mason Dam. Baker County intends to assess Forest Service recreational personnel to determine usage of this parking area in the projected construction months of October and November. We believe that this assessment will confirm that little public use occurs during this time and a temporary shutdown of this area will not greatly effect recreational opportunities.

#### *5.4 Project Nexus*

Black Mountain Road provides motorized access to the Wallowa-Whitman National Forest. It provides for local residential as well as recreational use by the public. Baker County intends to keep this road open during construction though delays may occur. The undeveloped parking area immediately below the dam will be used as a staging area but the time of year the work will be performed will cause little effect on visitor and recreational satisfaction.

#### *5.5 Proposed Methodology*

Baker County proposes to work in conjunction with the Forest Service to minimize impacts to recreation and visitors to the National Forest. The Project will be scheduled to cause the lowest disruption to recreational use. Local Forest Services employees and Baker County road department personnel working collaboratively will be able to most adequately set construction schedules that have the least impact to the area.

#### *5.6 Level of Effort and Cost*

Local Forest Service personnel and Baker County road officials will assess the project and determine a scope of work and timing of construction issues that least effect recreation and visitors. Baker County will use pressure sensitive counters on Black Mt. Road as well as the river road to Mason Dam during comparable time periods to aid Forest Service and Baker County officials in their planning. Baker County will keep Black Mt. Road open to all during the construction of the power line in the road right of way.

Baker County will work with the local Forest Service landscape architect after construction to restore any damage to the staging area and work out a post construction plan to enhance this undeveloped parking area. In collaboration with the Forest Service, we will agree on a site plan as part of the FERC licensing agreement.

## **ALTERNATIVE STUDY PLAN 6: ASSESS TRADITIONAL CULTURAL PROPERTIES**

These studies were proposed by FERC and the US Forest Service

### *6.1 Goals and Objectives*

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:

1. Identification and documentation of TCPs associated with the Project.
2. Identification of Project-related effects on these TCPs.
3. Evaluation of affected TCPs for National Register of Historic Places (NRHP) eligibility.

### *6.2 Relevant Resource Management Goals*

The licensing of the project is a federal undertaking and a license issued by the Commission will permit activities that may "...cause changes in the character or use of historic properties, if any such historic properties exist..." (36CPR 800.16(d)). The commission must, therefore, comply with Section 106 of the National Historic Preservation Act, as amended, which requires the head of any federal department or independent agency having authority to license an undertaking to take into account the effect of the undertaking on historic properties. Historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP. TCPs are a type of historic property eligible for inclusion in the NRHP because of their association with cultural practices or beliefs of a living community.

Project construction, operation, and maintenance may affect the value and integrity of TCPs in the vicinity of the project. Ensuring that the effect of project construction and operation pertaining to this resource is considered in a reasoned way is relevant to the Commission's public interest determination.

### *6.3 Background and Existing Information*

During consultation with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the tribe indicated that the project is located in what was historically their ceded area and therefore TCPs might be present. Due to the possibility of TCPs, a survey of the project's APE is needed. Once known sites in the APE have been documented, potentially eligible TCPs and any project effects upon them should be identified.

The Project Boundary basically encompasses already disturbed ground. The dam itself and Black Mt. Road. The likelihood of TCPs being located in these areas is remote.

#### 6.4 *Project Nexus*

Project-related activities, especially ground-disturbing activities, related to construction of the project could adversely affect TCPs through disturbance or direct loss. Baker County has no intention of adversely affecting any Traditional Cultural Properties.

#### 6.5 *Proposed Methodology*

Our proposed study would consist of the following:

1. Literature review of Bureau of Reclamation, Forest Service or Oregon State Historic Preservation Office records.
2. Consultation with the CTUIR to identify possible sights that may lie within 200 feet of the Project Boundary.
3. Systematic pedestrian survey (SHPO approved) of all areas where ground disturbing activities related to the proposed Project are to occur.
4. Preparation of a report, with maps that detail the scope of the project, the pre-field study and fieldwork related to completing the Section 106 Compliance. Should any historic properties be encountered within the APE in the survey, Oregon SHPO site forms must be completed and a mitigation plan would have to be determined in consultation with the SHPO and CTUIR.

#### 6.6 *Level of Effort and Cost*

The project is considered an undertaking under Section 106 of the NHPA and as such Section 106 Compliance is a Federal requirement for the issuance of a FERC license.

The cost of the literature review will depend on the records available. Baker County does not expect that we will encounter any TCPs in the project area and that the narrow scope of the Project Boundary will minimize the time needed for the pedestrian survey.

## **ALTERNATIVE STUDY PLAN 7: ASSESS ARCHAEOLOGICAL AND HISTORIC-ERA PROPERTIES**

This study was requested by FERC.

### *7.1 Goals and Objectives*

The goal of this study is to develop the essential information to address issues pertaining to archaeological and historic-era properties. Objectives in support of this goal include:

1. Identification and documentation of archaeological and historic-era properties within the area of potential effect (APE).
2. Determination of potential project effects on archaeological and historic-era properties within the APE.
3. Evaluation of National Register of Historic Places (NRHP) eligibility (as appropriate and necessary) for properties affected by the project.

### *7.2 Relevant Resource Management Goals*

The licensing of the project is a federal undertaking and a license issued by the Commission will permit activities that may "...cause changes in the character or use of historic properties, if any such historic properties exist..." The Commission must, therefore, comply with Section 106 of the National Historic Preservation Act, as amended, which requires the head of any federal department or independent agency having authority to license an undertaking to take into account the effect of the undertaking on historic properties. Historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP. Assessment of historic properties is conducted in continuous consultation with the Commission, SHPO, US Forest Service, US Bureau of Reclamation, CTUIR and any other interested party.

Project construction may affect the value and integrity of cultural resources in the vicinity of the project. Ensuring that the effect of project construction and operation pertaining to this resource is considered in a reasoned way is relevant to the Commission's public interest determination.

### *7.3 Background and Existing Information*

The "Supplemental No. 1 to Pre-Application Document for P-12058-002" identified two properties on the NRHP, the Sumpter Valley Railway Historic District and the Sumpter Valley Gold Dredge. Due to the possibility of additional historic properties or archeological sites, a survey of the project's APE is needed. Once known sites in the APE have been documented, potentially eligible historic properties, and project effects upon them, should be identified.

The Project as planned will pass through disturbed property and the likelihood of Archaeological and Historic-era properties is remote.

#### *7.4 Project Nexus*

Project related activities, especially ground disturbing activities related to construction could adversely affect archaeological and historic properties through disturbance or direct loss. Additional information will provide data on historic and archaeological sites located within the APE. Results of data gathering will provide information on which sites are potentially eligible for the NRHP and any potential effects of the project on these sites. If there would be an adverse effect on Historic Properties, an applicant prepared Historic Properties Management Plan would be developed with all stakeholders.

#### *7.5 Proposed Methodology*

The generally accepted practice is to conduct a literature review and field reconnaissance. Since the Project Boundary is very narrow, we propose:

1. Literature review of Oregon SHPO, US Forest Service, Reclamation and CTUIR records for Archaeological and Historic-era properties.
2. Systematic pedestrian survey by Forest Service archaeologist of area within 100 feet of APE and 50 feet on either side of the proposed transmission line route.

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.

#### *7.6 Level of Effort and Costs*

Baker County asserts that the project area has been disturbed and that there are no Historic-era properties in the Project Boundary. The likelihood that archaeological sites exist within the APE are remote. To comply with state and federal rules and regulations is imperative. We believe that if a literature review and pedestrian survey confirm these facts, this is a much more cost effective way of ascertaining the existence of any Archaeological and Historic-era Properties. We intend to collaborate with all relevant resource agencies on the scope of the work.

If any sites are found in this survey, Baker County agrees to work with all interested parties on a more intensive field study.

## **ALTERNATIVE STUDY PLAN 8: BULL TROUT AND REDBAND TROUT AT UPPER CONFLUENCE OF PHILLIPS RESERVOIR**

This study was requested in general by ODFW, US Forest Service and the USF&W services.

### *8.1 Goals and Objectives*

The objective of this study would be to determine seasonal bull trout and red band trout use of Phillips Reservoir behind Mason Dam, including size and age class distribution.

Bull trout are currently known to occur in the tributaries of the Powder River, which flows into Phillips Reservoir. It is currently unknown whether bull trout use Phillips Reservoir for various life functions.

Red band trout habitat is widely distributed in the Powder Basin, and larger rainbow trout have been observed moving out of Phillips Reservoir into Deer Creek in the spring. It is currently unknown whether red band trout are in Phillips Reservoir.

### *8.2 Relevant Resource Management Goals*

The relevant resource agencies general goals are as follows:

1. Ensure that protection, mitigation and enhancement measures are commensurate with Project effects and help meet regional fish and wildlife objectives for the basin.
2. Recover federally proposed and listed species.
3. Conserve, protect, and enhance the habitats of fish, wildlife and plants that continue to be affected by the Project.
4. Ensure that once the licensing is complete, there is an adaptive management plan that allows for the use of new information or new management strategies over the term of the license, bringing us closer to the desired level of protection for fish and wildlife resources. The adaptive management approach is particularly appropriate where there is insufficient data and/or biological uncertainties about those measures that will be most effective for meeting ecosystem goals and objectives.

In addition, the goals for Endangered, Threatened and Proposed Species are as follows:

1. Reduce project effects on threatened, endangered, and proposed species on or adjacent to the Project.

2. Explore opportunities for potential protection, mitigation and enhancement measures for threatened, endangered and proposed species.
3. Gain a better understanding of bull trout population trends, migration, habitat loss, present usage, and continuing impacts as related to the Project.

In addition, an overarching Service goal is for the new licensing of the Project to succeed in having the Commission include, as license conditions, protection, mitigation, and enhancement measures that sustain, to the extent possible, normal ecosystem functional processes including geomorphic, hydrological and hydraulic patterns and water chemical and physical parameters. Maintaining and improving these functional processes throughout the term of the license will, in turn, provide habitat to support healthy fish and wildlife populations.

### *8.3 Background and Existing Information*

The most recent information states that bull trout are not presently known to occur in Phillips Reservoir. All fish sampling to date have yet to find any bull trout or red band trout in Phillips Reservoir. In the fall of 2004, the Idaho Dept of Fish and Game netted over 96,000 yellow perch from Phillips Reservoir to be re-introduced into Idaho. Again in the fall of 2005, Idaho fish and game netted over 193,000 yellow perch. All other netted fish were returned back into Phillips Reservoir and ODFW received data on species and size of native fish. No bull trout or red band trout were netted in this large scale operation. This would tend to confirm all resource agencies' findings that at the present time no bull or red band trout are in Phillips Reservoir. The potential does exist for bull trout or red band trout to inhabit Phillips Reservoir but additional sampling will not result in reintroduction at this time.

### *8.4 Project Nexus*

USF&W response: Project related effects could involve entrainment of fish into the intake pipe. Also, if there are changes to reservoir operations such as water level fluctuations not currently encountered, this could have a potential effect on any bull trout and other native fish utilizing the reservoir. Sampling can provide information on the level of use by bull trout and help better determine the actual impact of the project on the species.

Baker County response: Baker County is proposing an entrainment study. Prior to the entrainment study, it would be premature to say that the bull trout study meets the nexus test between the project operations and effects on the resource to be studied. If native species are not encountered in the entrainment study, the need for additional bull trout studies would be mute. In addition, project operations will not change water level fluctuations in Phillips Reservoir. If bull trout are not in Phillips Reservoir, sampling will not provide information on the level of use by bull trout.

US Forest Service response: Operation of a hydroelectric facility has the potential to directly effect bull trout if one were in the lake or were to go through the dam. Fluctuations in water depth that currently occur have the potential to affect the suitability of the habitat for use by bull trout at least during some portions of the year.

Baker County response: Same as above. If water fluctuations in water depth that currently occur are a nexus to this project, Baker County has no response. We have no control now or in the future.

### 8.5 *Proposed Methodology*

Relevant agencies' methods and alternatives are as follows:

1. Rotary screw traps or a weir will used to capture salmonids at the mouth Deer Creek and the Powder River where it enters Phillips Reservoir. Sampling will occur daily throughout the fall to sample and estimate downstream migration and in the spring to sample and estimate upstream migration.
2. Data probably would be gathered by trapping bull trout either in the lake or in streams tributary to the Powder River and inserting pit-tags. Fish would be monitored for movements within the system.
3. There may be alternative ways to sample bull trout use of Phillips Reservoir. Any alternative sampling methods should be discussed with relevant resource agencies.

### 8.6 *Level of Effort and Costs*

Initial estimates to conduct the sampling, using a screw trap, are approximately \$6500 per month. This estimate is very rough with many factors affecting costs. The sampling would take place at the end of spawning (fall) and early summer. If it was a six month study per year for 2 years, costs would be approximately \$78,000.

Baker County believes that a bull trout and red band trout study should not take place unless evidence presented in the Phillips Reservoir Fish Entrainment Study, which has been proposed, shows some empirical data that native fish are migrating out of Phillips Reservoir into the Powder River below Mason Dam. We believe that it is very hard to prove a Project Nexus based on considerable data available from the recent netting operations done by Idaho Fish and Game. This clearly shows that no red band trout or bull trout exist in Phillips Reservoir.

If these studies are truly important to the relevant agencies and to the viability of the native fish populations in the tributaries of the Powder River, Baker County would agree to participate in a bull trout and red band trout sample study by paying 25% of the cost of the study. The other participating agencies would pick up the remaining 75% of the cost of the study.

If the Phillips Reservoir Fish Entrainment Study shows native fish passage, Baker County believes that fish screening of the intake valve would be the most cost effective method of protecting native fish in the reservoir.

## **ALTERNATIVE STUDY PLAN 9: HYDROLOGY AND STREAM FLOW ANALYSIS**

These studies were requested by the US Forest Service and the Oregon Dept. of Fish and Wildlife.

Baker County has determined that there is no need for any studies as this will be a run of the river project and flows will not be controlled by the project. Hydrology and stream flows are dependent on water released by the Bureau of Reclamation and Baker Valley Irrigation District.

### *9.1 Goals and Objectives*

To determine what effects the proposed hydroelectric operation would have on stream flows and as a result, determine what effects would occur to the river channel, water quality, stream temperatures, stream biota, etc. The study should determine existing amounts and duration of river flows through the post-dam period on the river below the and compare that to expected releases below the hydroelectric facility. This should be done for low dam storage years and years where the reservoir is near capacity.

Baker County will do a historic review of reservoir levels, water discharge from the dam and other flow data as part of the project scope but believes any further studies are not cost effective.

### *9.2 Relevant Resource Management Goals*

All resource agencies are responsible for protecting water quality, restoring native fish and wildlife populations for use and enjoyment by present and future generations. Key directives for implementing fish and wildlife strategies include: avoidance of impacts to these, protection of genetic diversity and protection and restoration of natural habitats on which these populations are dependent.

### *9.3 Background and Existing Information*

Historic data exist for the entire 41 years of operation. Flows have varied depending on reservoir levels, snowpack, weather, flood control plans and irrigation. The project will be run of the river. According to a letter written to FERC, dated Aug. 7<sup>th</sup>, 2006, the Bureau of Reclamation wrote:

“Operation of the power plant shall be subordinate to all rights, both explicit and implied, of the Baker Project and its sub features. The power plant shall only receive flows and with associated timing that would normally have been delivered through the outlet works of the dam. Additional water will not be diverted or released through the project other than for authorized project purposes. Reclamation in no way guarantees the reliability or quantity of flow to the project.”

Baker County intends to compile the historic flow data as part of our economic analysis and will share this data with all relevant resource agencies and FERC. Baker County will collaborate with all agencies to share available data.

#### *9.4 Project Nexus*

Water flows through the project do provide a nexus for the project. Entrainment and fish passage through the existing dam will be addressed in related studies.

#### *9.5 Proposed Methodology*

Baker County will provide the following information that will be obtained from existing sources:

1. Daily average flow by month, presented as an average of all years for Post Mason Dam construction.
2. Daily average flow by month for the lowest and highest water year on record for Post Mason Dam.
3. 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.
4. Average monthly flow for each year since Mason Dam was constructed.
5. Lowest average monthly flows for each year.

#### *9.6 Level of Cost and Effort*

The data exists and the County will compile the above data. Need for additional studies will not add to the project and aid in resource management.

**Studies Not Proposed**

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## **STUDY NOT PROPOSED 1: VISUAL QUALITY**

This study was proposed by the US Forest Service.

The goal of this study is to manage the scenic corridor of the Project. They believe that the project will have an impact on the view corridor near Mason Dam and the Project Boundary. The purpose of the model is to have a physical demonstration of the Project and to allow testing of variations in the Project.

Baker County believes that the project will have little visual impact on the Project Boundary and of the area surrounding Mason Dam and the Phillips Reservoir area. We intend to work with the US Forest Service Landscape Architectural personnel to design the Powerhouse and Substation so that they blend with the natural surroundings. The Powerhouse will set at the base of Mason Dam and will blend in with already in place concrete structures and the rock face. The addition of the Powerhouse will not make this area look any different from the picture of a dam. This area is not readily seen from Highway 7 and the view should not be impacted. The Substation will be built on the Idaho Power Co. right of way directly beneath the current 138 kv transmission line. This is an area that has been cleared of vegetation and we intend to work with the Forest Service Landscape Architect to design neutral structures to minimize visual impacts. The power line will be buried within the existing Black Mountain Road right of way. The impact to this view corridor will be minimal except during construction.

We agree that placement and design of facilities can be incorporated into the scenery in a manner that complements and harmonizes with the landscape character of the area. In collaboration with the US Forest Service, Baker County agrees to submit a project plan that will address the Forest Service's visual quality issues

## **STUDY NOT PROPOSED 2: SALMONID SPAWNING AND JUVENILE DENSITY STUDY.**

This study was requested by the Oregon Department of Fish and Wildlife and the US Forest Service.

The purpose stated for this study is to determine the location, quality and use spawning habitat by salmonids; and determine juvenile salmonid occurrence and density in the upper two miles of the Powder River below the project. Potential sediment releases during Project construction, as well as operation of the Project may impact the success of spawning adult fish and rearing of juvenile fish.

Baker County believes that construction of the Project will not impact sedimentation of the Powder River downstream. Construction of the Powerhouse and discharge area will be done during low flow (10 second feet release by Baker Valley Irrigation District) and using best practices, sedimentation will be incidental. Baker County has proposed a fish entrainment study to see what native fish currently pass through the existing dam. It appears that this Fisheries study is more of a ‘fishing trip’ for information that resource agencies want with little Nexus to this project. We agree that this information may be important to ODFW’s management strategies but lack of studies on this subject may show how important these studies are in their overall strategies.

We believe it is important to state that we appreciate the work that all the resource agencies have put forth on this project. It is incumbent on Baker County and FERC to look realistically at the Nexus of this project. Potential exists in hundreds of ways to potentially have a piece of Nexus to a hydro project when it comes to water and fish. At some point, a line needs to be established to make the determination of what is project related and how do we achieve win-win projects like we believe this project to be. State and federal policy is shifting towards prioritizing green, renewable energy as a priority. Safeguards and resource preservation are extremely important and Baker County is a willing participant in this process. We caution that any change of the status quo must not be ‘license’ for agencies to have field work done that does not relate materially to any new projects.