RECLAMATION

Managing Water in the West

Finding of No Significant Impact
Final Environmental Assessment
John W. Keys III Pump-Generating Plant Modernization Project

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Grand Coulee Power Office
Grand Coulee, Washington

March 2012

U. S. DEPARTMENT OF THE INTERIOR

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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PN FONSI 12-01

Introduction

The Bureau of Reclamation (Reclamation) has prepared this Finding of No Significant Impact (FONSI) to comply with the Council on Environmental Quality's regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the proposed action, the alternatives considered, the scoping process, Reclamation's consultation and coordination activities, and Reclamation's finding. The Final Environmental Assessment (EA) fully documents the analyses.

Background

The Bureau of Reclamation announces its environmental findings on the John W. Keys III Pump-Generating Plant (JKPGP) Modernization Project. The purpose of the JKPGP Modernization Project is to replace and upgrade existing components of the plant that are exhibiting substantial age-related wear and to increase JKPGP's operational reliability and flexibility. Reclamation is proposing to overhaul and modernize the JKPGP's six pumps and six pump-generating units at Grand Coulee Dam. Many of the plant's principal components are being operated far beyond their intended service life or are being operated below their original design capacity due to physical limitations. In particular, the twelve units that comprise the JKPGP show problems stemming from wear and design that require more frequent maintenance, more challenging repairs, and longer down times. Also, the existing direct coupling of the six JKPGP pump units to individual generating units in the Grand Coulee left powerhouse has created constraints and limitations on system flexibility, including a rigid and unwieldy start/stop sequence for the pumps. As a result, these and other components contribute to growing safety related concerns at the plant, increase the plant operational costs, create limitations on day-to-day plant operations, and impose risks to sustained long-term operation of the plant. These issues threaten Reclamation's contractual obligations to provide on-demand delivery of irrigation water and accommodate pumped storage at Banks Lake for balancing reserves and electrical load shaping.

Alternatives Considered

The EA analyzed three alternatives for the JKPGP Modernization Project: Alternative A – No Action; Alternative B – JKPGP Modernization; and Alternative C – JKPGP Modernization and Left Powerhouse Decoupling. NEPA regulations require the action agency to consider a No Action alternative for comparative analysis purposes. Alternative B is the preferred alternative.

Alternative A – No Action

Under the No Action Alternative, Reclamation would continue operating the JKPGP's six pumps and six pump-generating units under the existing maintenance program. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols.

Reclamation would continue maintenance and operation of the JKPGP pumps (P1 – P6) and pump-generating units (P/G7 – P/G12) in accordance with current agreements with irrigators and the Bonneville Power Administration (BPA). The existing maintenance schedule would be followed with allowances for emergency repairs or replacements. Maintenance and repair costs, production outages, and time needed to obtain replacement parts would continue to increase based on the aging technology and the scarcity of the replacement parts.

Alternative B – Preferred Alternative, JKPGP Modernization

Under Alternative B, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units. The overhaul would include work on the unit controls, transformers, circuit breakers, and the fire protection equipment. The main portion of the overhaul work would be completed within the confines of the JKPGP. The modernization program would include inspecting and refurbishing or replacing components, depending on need.

Other repairs may need to be performed on the generating units, but due to lack of access to the units, all items in need of repair cannot be fully anticipated. The objective is to repair and restore these machines to ensure reliable operation for an additional 30 years. The modernization is estimated to be completed in 10 to 15 years and will be conducted so as not to interfere with irrigation deliveries.

Reclamation proposes to use 1.65 acres near the southwest corner of the Industrial Area as a contractor laydown area for the modernization project.

Alternative B includes all actions necessary to fully upgrade the JKPGP. Within this alternative, any number of less comprehensive phased repairs or modernization upgrades could be undertaken. While Reclamation may not ultimately choose to take all these proposed actions to upgrade JKPGP, by analyzing the environmental effects of all the

actions together, Reclamation discloses the full potential consequences of any combination of actions that may be chosen.

The proposed modernization and upgrade work would improve the JKPGP's flexibility to provide water for irrigation to the Columbia Basin Project (CBP) and to support load shaping and balancing reserves.

These proposed improvements and upgrades will not change the essential operation of Banks Lake according to existing protocols for irrigation, load shaping, and balancing reserves; however, they may enable more rapid transitions and/or more frequent incremental changes in daily reservoir levels while the overall reservoir levels remain within established operating norms.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would modernize the JKPGP pump and pump-generating units as described in Alternative B. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid. The modernization is estimated to be completed in 10 to 15 years and will be conducted so as not to interfere with irrigation deliveries.

Currently, the pump units (P1 - P6) are connected to the left powerhouse generating units G1, G2, and G3 by an isolated-phase bus that runs along the face of Grand Coulee Dam. The bus is deteriorating and demands on-going maintenance that can only be completed in the winter to avoid taking the pumps off-line during the critical irrigation season. The decoupling of the JKPGP from the left powerhouse would allow Reclamation to decommission the bus and alleviate these maintenance and related safety issues. Decoupling would require one additional transformer. Depending on the space requirements of the new and replacement equipment needed for the decoupling portion of the modernization project, it may be necessary to relocate the fire station that is presently located in JKPGP. The preferred new location of fire station is near the back entrance gate of the Industrial Area. There are two potential options for the new firehouse; one being a single story 100-foot by 100-foot building and the other being a two-story 50-foot by 100-foot building.

Environmental Consequences

Hydrology

Hydrological model results show that the proposed modernization of the JKPGP would not significantly change Banks Lake reservoir elevations. Under the preferred alternative:

- Banks Lake elevations, throughout the year, would remain within the existing typical operating range of elevation 1565 feet to elevation 1570 feet.
- Irrigation deliveries to the CBP would be unaffected.
- The summer draft to elevation 1565 feet for flow augmentation would be unaffected.
- There could be some increase in daily fluctuations in lake elevations, but daily changes in elevations would be within several inches of what currently occurs.

Water Quality

Under the preferred alternative, no water quality impacts are anticipated because of the Reclamation plan to overhaul the JKPGP. Current operation schedules dictate that Banks Lake elevation change is limited to a 2.5- to 5-foot change. It has been suggested that increased shoreline erosion may occur outside of the 2.5- to 5-foot operating window, but none of the alternatives propose increasing the operating window beyond the 5-foot margin. The project will not result in the addition or change in other pollutants of concern, concentrations, or expression such as temperature, PCBs, and dioxins.

Threatened and Endangered Species

There are three threatened and endangered species potentially located in the area around the JKPGP; bull trout, Columbia Basin DPS Pygmy Rabbit, and the Ute Ladies'-Tresses. Construction would take place within previously disturbed areas within the JKPGP and would not affect any potential habitat. The slight changes in hydrology due to the more efficient operation of JKPGP are limited to Banks Lake and therefore would have no effect on bull trout. No adverse impacts to the threatened and endangered species are expected.

Fisheries

Under the preferred alternative, no quantifiable effects to the fisheries in Banks Lake, Lake Roosevelt, or in the Columbia River downstream of Grand Coulee Dam are expected.

Wildlife

No quantifiable biological effects are expected to the species dependent on the habitats in or around Banks Lake, the JKPGP, Lake Roosevelt, or in the Columbia River downstream of Grand Coulee Dam.

Hazardous or Toxic Wastes

Established worker safety standards and contract specifications adequately address the potential worker exposure to generated hazardous/dangerous wastes. Waste management standard operation procedures, contract specifications, and Federal, State, and local environmental regulations ensure that the potential for the release of hazardous/dangerous wastes to the environment is minimal. It is anticipated that the proposed modernization represents a minimally elevated potential for impact to human health or the environment.

Visual Quality

The replacement transformers and equipment installed on the roof of the JKPGP would not be visible from the road and would not detract from views of Grand Coulee Dam and Lake Roosevelt. The equipment would be visible from the Lake Roosevelt but would not dominate the viewshed or be distinguishable from the other industrial equipment at the JKPGP. No significant impacts to visual resources are anticipated from the preferred alternative.

Power

The preferred alternative would make the facility more reliable for all of its intended purposes. In order to maximize a modernized JKPGP's ability to provide balancing reserves, a neutral operating position across the day may provide increased and more predictable balancing reserve capability from JKPGP. A neutral operating position means that the JKPGP could start or stop units based on balancing reserve demand created by the variability of other generation or loads in the system. No significant impacts to power are anticipated from the preferred alternative.

Recreation

Construction and maintenance activities associated with the JKPGP modernization could result in short-term, minor effects on public access to Grand Coulee Dam and the JKPGP. There would be some increase in daily fluctuations in elevations of Banks Lake reservoir, but daily changes would be within a few inches of what currently occurs. Therefore, there would be no adverse effect on the provision, availability, or access to reservoir-oriented or land-based recreation facilities and opportunities at the reservoir compared to current and historic conditions.

Transportation

The majority of the work associated with the preferred alternative would be completed within the confines of the JKPGP by contractor workforces. Off-site staging, assembly, and maintenance work would be accomplished at Reclamation's Industrial Area Salvage Yard located about ½-mile southeast of JKPGP on the north side of SR 155. There would be no permanent increase in traffic or other transportation related impact with the JKPGP's continued operation following the modernization.

Socioeconomics

Local School Enrollments

The majority of the preferred alternative would likely be completed by contractor workforces that would be on site and in the community only for the duration of their specific work assignment. Often, transient tradesmen and workers in these situations do not relocate their families to the temporary job location. Based on experience with the TPP and the smaller size and longer duration of the proposed JKPGP work effort, it is estimated that as many as 16 additional students could enroll in the Grand Coulee Dam school system at some time during the course of the modernization.

Until student-based State and Federal funding levels were increased in response to the added student population, this would result in a decrease in average funding level per student of about 2.4 percent based on the District's May 2011 student enrollment. It also could increase the student-to-instructional-staff ratio similarly depending on the grade distribution of the added students. While this is an important consideration for the District's short- and long-range planning and budgeting, the majority of the funding lag is expected to be temporary (less than one academic year) and the low magnitude means that it does not rise to the level of a significant impact.

Regional Economic Effects

The anticipated economic impact of the preferred alternative would occur throughout the five-county regional study area. These regional impacts would not occur uniformly each year; instead, they would vary year to year proportionate to annual regional expenditures. The majority of the output, employment, and income effects are due to the expenditures of the wages earned by the workforce involved in the modernization activities. Regional economic impacts related to modernization expenditures are estimated to result in an increase in: output of sales, regional employment, and labor income. It is important to note that the employment reported below is the potential total of all jobs generated directly and indirectly by the economic input within the study area. The potential number of onsite jobs created is estimated at up to 32 at one time.

Environmental Justice

The existing demand for rental housing in the project area is generally considered to be high relative to the currently available supply and the JKPGP modernization would be expected to contribute to that demand; however, it is not reasonably foreseeable that this would result in adverse impacts that could disproportionately affect minority and low-income populations.

Cultural Resources

The proposed modernization would not have any impact on archeological resources or properties of traditional cultural or religious significance to tribes. Work under the preferred alternative would have an overall positive effect on the building and the proposed historic district. However several aspects of the modernization project likely would have an adverse effect on the JKPGP and in other cases some details of the work have not been designed at this time or are unknown such that an assessment of their effect on the building and district is not possible. Reclamation will enter into a Section 106 programmatic agreement with the Advisory Council on Historic Preservation (ACHP) and/or the Washington State Historic Preservation Office (SHPO) regarding measures to resolve the adverse effects on the JKPGP. The cultural resource section of the EA details the anticipated elements of the programmatic agreement.

Indian Trust Assets

The preferred alternative would not result in any significant negative effects on ITAs. The project would not involve actions on trust lands, and it would not reduce the ability of Indians to hunt, fish, and boat in the Colville or Spokane reservations or associated trust lands. The project would not affect the amount of water available in the Columbia River, and therefore would not affect any water rights that might be claimed by the Colville or Spokane tribes.

Indian Sacred Sites

Implementation of preferred alternative would not result in a reduction of access to sacred sites.

Environmental Commitments

The EA identifies standard practices and mitigation measures to minimize environmental, cultural resources, Indian sacred sites, or Indian trust asset impacts. Reclamation is committed to their implementation using best management practices and considers them to be part of the Federal action.

Agency Consultation and Coordination

National Historic Preservation Act of 1966

The National Historical Preservation Act (NHPA) was enacted in 1966 and requires Federal agencies to consider project-related impacts to historic properties, which includes prehistoric and historic-period archeological sites, traditional cultural properties, and elements of the built environment. The process for implementing the NHPA is defined in Federal regulations (30 CFR 800) and includes consultation with the SHPO, Tribal Historic Preservation Office (THPO), and ACHP about Federal findings regarding project effects.

Reclamation then consulted with the Washington SHPO and Colville THPO regarding the potential effects of this project, as it had the potential to adversely affect historic properties in the jurisdiction of both offices. Reclamation's initial consultation with the SHPO and THPO in July 2011 requested their concurrence with our determination of the Area of Potential Effects and level of effort to be used in identifying historic properties, and both agencies concurred later in the same month. In December 2011, after executing the identification plans developed earlier and writing reports that met the documentation requirements of 36 CFR 800.11(e), Reclamation consulted again with the SHPO and THPO regarding our Finding of Adverse Effects. The THPO concurred with our finding near the end of December 2011, and the SHPO concurred shortly thereafter in January 2012.

In keeping with the regulations specified at 36 CFR 800.6, Reclamation notified the ACHP of our Finding of Adverse Effects and invited them to participate in the resolution of those effects. The ACHP exercised its discretion to refrain from participating, and informed Reclamation in February 2012 that the agency should work with the SHPO and THPO to resolve the adverse effects.

Reclamation sent a draft Programmatic Agreement (PA) to both the SHPO and THPO in early February 2012, and both agencies have agreed, in principle, to sign the agreement. The PA is currently awaiting approval by the Colville Confederated Tribes. After receiving their approval, the PA will be provided to the SHPO for signature. This will conclude consultation under the National Historic Preservation Act.

Tribal Government Coordination and Consultation

A scoping letter was sent to the Colville Confederated Tribes (CCT) and the Spokane Tribe of Indians (STI) to seek their involvement and input and address any questions or concerns related to the proposed actions. No indication was received from the tribes that any comments or concerns existed or that further consultation was warranted.

After sending out the Draft EA, Reclamation received comments from the STI, many of which focused on the discussion of Indian Trust Assets. The STI did not request any additional consultation. Changes were made in EA to address the tribe's comments.

Public Involvement

A public scoping period for the EA was held from July 6, 2011 to August 5, 2011. Prior to the scoping period, Reclamation mailed a scoping document to Federal, state and local government officials and other known and potential interested parties. An article was published in local newspapers describing the proposed action and opportunities for public and agency involvement.

A public review period for the Draft EA was held from December 14, 2011 to January 31, 2012. The Draft EA was mailed to Federal, state, local agencies, elected officials, Indian tribes, and interest groups for comments. Reclamation received five written comment letters on the Draft EA. The comment letters and Reclamation's responses are included as an attachment to this FONSI and Final EA as Appendix C.

Changes to the Final EA

The Cultural Resource and Indian Trust sections have been amended to reflect changes from public comments and to include updated consultation information. The preferred alternative has been changed from Alternative C to Alternative B.

Finding

Based on a thorough review of the comments received and analysis of the environmental impacts, mitigation measures, and implementation of all environmental commitments as presented in the Final EA and this FONSI, Reclamation has concluded that the Preferred Alternative will have no significant effect on the human environment or natural and cultural resources. Reclamation, therefore, concludes that preparation of an Environmental Impact Statement is not required, and that this FONSI satisfies the requirements of NEPA.

Recommended:

3/28/12

James Taylor
Natural Resources Specialist
Boise, Idaho

Date

Approved:

3/29/12

Mark C. Jenson
Power Manager
Grand Coulee, Washington

Date

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Frontispiece – Location map

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Acronyms and Abbreviations

7-DADMax	7-day average of the daily maximum temperatures
ACHP	Advisory Council on Historic Preservation
AMSL	above mean sea level
aMW	average megawatts
BPA	Bonneville Power Administration
CBP	Columbia Basin Project
CCT	Colville Confederated Tribes (formally known as Confederated Tribes of the Colville Reservation)
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DDT	dichlorodiphenyltrichloroethane
dec	decremental
DPS	Distinct Population Segment
EA	Environmental Assessment
Ecology	State of Washington Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
GCPO	Grand Coulee Power Office
HLH	heavy load hours
inc	incremental

ITAs	Indian trust assets
JKPGP	John W. Keys III Pump-Generating Plant
kV	kilovolt
LLH	light load hours
LRFEP	Lake Roosevelt Fishery Enhancement Program
mg/L	milligrams per liter
MOA	Memorandum of Agreement
MVA	megavolt amperes
MW	megawatts
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PGs	pump generators
ppm	part per million
PWA	Public Works Administration
Reclamation	Bureau of Reclamation
RMP	Resource Management Plan
RV	recreational vehicle
SHPO	State Historic Preservation Office

SR	State Route
SRSP	Steamboat Rock State Park
Standards	Standards for the Treatment of Historic Properties
State	State of Washington
T&E	threatened and endangered
TCDD	tetrachlorodibenzodioxin
TDG	total dissolved gas
THPO	Tribal Historic Preservation Office
TMDL	total maximum daily load
TPP	Third Powerplant
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSPRC	Washington State Parks and Recreation Commission
WY	water year

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Chapter 1 PURPOSE AND NEED

1.1 Background

The Columbia Basin Project (CBP) began with fund allocation for Grand Coulee Dam pursuant to the National Industrial Recovery Act of June 16, 1933. Grand Coulee Dam and John W. Keys III Pump-Generating Plant (JKPGP) are on the mainstem of the Columbia River about 90 miles west of Spokane, Washington. Construction of the original dam started in 1933 and was completed in 1942.

The Federal Columbia River Power System (FCRPS) is comprised of 31 dams on the Columbia, lower Snake, and other rivers that are owned and operated by the Bureau of Reclamation (Reclamation) and U.S. Army Corps of Engineers (Corps) and the transmission system constructed by Bonneville Power Administration (BPA) to deliver electric power. The hydroelectric dams in the Columbia River Basin have a maximum capacity of 22,500 megawatts (MW) and provide about 30 percent of the electricity used in the Pacific Northwest. Grand Coulee Dam is the largest multipurpose facility in the FCRPS.

Construction of Grand Coulee Pumping Plant (renamed John W. Keys III Pump-Generating Plant) began in 1946. Six pumping units, each rated at 65,000 horsepower and with a nameplate capacity to pump 1,350 to 1,360 cubic feet per second (cfs) at a 310- to 330-foot head, initially were installed in the plant to lift water from Lake Roosevelt to the 1.6-mile-long feeder canal for delivery into Banks Lake.

Immediately following World War II, construction started on the primary irrigation facilities. In the spring of 1952, the first irrigation water was delivered to the irrigation system, then serving about 66,000 irrigable acres. The plant was designed to accommodate 12 pumping units. In the early 1960s, with the Northwest facing power shortages, investigations showed the potential the site offered for pumped storage. It was determined feasible that the last six units were to be reversible; that is, water could be returned from Banks Lake back through these units to generate power during peak power demand periods. In 1973, two of the pump-generator units were installed, each unit rated at 67,500 horsepower when pumping and 50,000 kilowatts when generating. Two of the remaining four pump/generating units, each rated at 67,500 horsepower when pumping and 53,500 kilowatts when generating, were placed in service in 1983, followed by the last two in 1994. The total generating capacity of the JKPGP is 314,000 kilowatts.

1.2 Purpose and Need for the Action

The purpose of the JKPGP Modernization Project is to replace and upgrade existing components of the plant that are exhibiting substantial age-related wear and to increase JKPGP's operational reliability and flexibility.

Reclamation is proposing to overhaul and modernize the JKPGP's six pumps and six pump-generating units at Grand Coulee Dam. Many of the plant's principal components are being operated far beyond their intended service life or are being operated below their original design capacity due to physical limitations. In particular, the twelve units that comprise the JKPGP show problems stemming from wear and design that require more frequent maintenance, more challenging repairs, and longer down times. Also, the existing direct coupling of the six JKPGP pump units to individual generating units in the Grand Coulee left powerhouse has created constraints and limitations on system flexibility, including a rigid and unwieldy start/stop sequence for the pumps. As a result, these and other components contribute to growing safety related concerns at the plant, increase the plant operational costs, create limitations on day-to-day plant operations, and impose risks to sustained long-term operation of the plant. These issues threaten Reclamation's contractual obligations to provide on-demand delivery of irrigation water and accommodate pumped storage at Banks Lake for balancing reserves and electrical load shaping[1].

In summary, the proposed JKPGP modernization is needed to ensure efficient plant operations, to provide reliable irrigation delivery, and allow for adequate flexibility to continue to balance power reserves and load shaping. The potential loss of public revenue and adverse effects on the regional economy from interrupted irrigation delivery and public power generation would be substantial and unacceptable.

1.3 Location and General Description of Affected Area

Grand Coulee Dam is located on the mainstem of the Columbia River approximately 90 miles west of Spokane in central Washington. The JKPGP is immediately upstream of Grand Coulee Dam on the west side of the river.

1.4 Authority

The CBP began with fund allocation for Grand Coulee Dam pursuant to the Nation Industrial Recovery Act of June 16, 1933. Grand Coulee pump storage plant authorization is provided by the Acts of August 30, 1935, the Columbia Basin Project Act of March 10, 1943, and by the Secretary of the Interior's approval and submittal of feasibility reports to the President and Congress in House Document 172 in 1945 and in a 1949 report, both pursuant to Sec. 9(a) of the Reclamation Project Act of 1939.

[1] Balancing reserves refers to responding to electrical system demands by either inceasing or decreasing generation, and for JKPGP, increasing or decreasing pump loads.
Load shaping refers to the ability to store excess electrical power during periods of low demand by pumping water up into Bakes Lake and releasing this stored water later for generation during times of increased demand.

1.5 Scoping and Issues

A public scoping period was held from July 6, 2011 through August 5, 2011. A news release was provided to local area media announcing Reclamation's intent to prepare an Environmental Assessment (EA) and requesting public comment during the 30-day scoping period. Letters were sent to the Confederated Tribes of the Colville Reservation (also known as the Colville Confederated Tribes or CCT) and the Spokane Tribe of Indians to inform them of the proposed alternatives and to solicit comments or concerns they may have on the alternatives. Additionally, similar letters were sent to Federal and State agencies, local city and county officials, and a number of local and regional organizations and interest groups (Appendix A).

Three responses to the news release and the scoping letter were received during the scoping comment period. The scoping comments are included in Appendix B and summarized below:

- It was suggested that Reclamation connect the pump-generation units into the power grid and upgrade the JKPGP in a manner that facilitates the plant's ability to integrate wind energy/pumped storage into its operation.
- Concerns were expressed that the expanded workforce needed to accomplish the JKPGP modernization could result in more students attending public schools, and the increased student population could adversely affect Grand Coulee Dam School District finances since few of the non-state sources of funds increase when enrollments increase.
- Concerns were expressed that State Route (SR) 155, which runs past the JKPGP, provides the only access route for the Grand Coulee Dam School District to transport students between school sites or to access buses in case of an emergency.
- Concerns were expressed that the JKPGP modernization could result in significant adverse impacts that could warrant preparation of an Environmental Impact Statement (EIS).
- It was suggested that the EA examine effects on Banks Lake as well as the mainstem of the Columbia River and the integration of wind and hydropower throughout the Northwest.
- It was suggested that the EA examine effects to society as a whole, as well as to the region, various cultural and other interests, and the local communities.

- It was suggested that the EA take into account unique characteristics of the area including all aspects of the natural environment; cultural resources including those along the Lake Roosevelt shorelines; human environment, controversy, and uncertainty; potential for setting precedents or affecting future generations; related and cumulative actions; construction and operational effects on scientific or historical resources; threatened and endangered (T&E) species and critical habitat; and consistency with Federal, State, local, and Tribal laws.

1.6 Other Related Actions and Activities

The following actions are related but separate because they are being done on various portions of the Grand Coulee Project and serve different purposes and needs. Separate National Environmental Policy Act (NEPA) documents have been completed or are being prepared for the following:

Replacing the 500-Kilovolt (kV) Cables with Overhead Lines

The condition of high voltage cables between the Third Powerplant (TPP) and the 500-kV Spreading Yard constitute an unacceptable risk for unplanned loss of generation, requiring that they be replaced. The nine, single-phase, oil-filled cables for generator units G-19, G-20, and G-21 have been operated near or above their continuous current rating for 30 years. There are signs of deterioration such as bulges along the cables. They share a common underground tunnel so that the failure of one cable has the potential to take all three generators out of service for at least one year. The underground cables will be taken out of service and replaced with overhead lines.

Third Powerplant Overhaul

The overhaul will include work on the generator, turbine, shaft, and the auxiliary equipment. The main portion of the overhaul work will be completed within the confines of the TPP. Generator units G-19, G-20, and G-21 may be up-rated in overall unit capacity with new generator and turbine components. Generator units G-22, G-23, and G-24 have begun to show age-related component wear resulting in reduced reliability and increasing repair outages. The overhaul program will include inspecting and refurbishing or replacing components. In order to make room to refurbish the existing parts, a new material storage building will be erected adjacent to the TPP and the spare parts currently stored in the repair areas of the TPP will be relocated to the new building.

Modifying the Fixed-Wheel Gate Chamber to Accommodate Media Blasting and Painting

The TPP fixed-wheel gate chamber modification will make it possible to media blast and paint TPP fixed-wheel gate components and be in compliance with Life Safety and Electrical Codes. At present, the lighting is not explosion-proof, ventilation is inadequate, separation from dam galleries is inadequate, and wiring is inadequate.

Rehabilitating TPP Cranes

There are six cranes that will be in continual use during the TPP Overhaul. These consist of three powerhouse bridge cranes, one 2,000-ton powerhouse gantry crane, and one draft tube gantry crane. It is imperative that they all be in excellent working order prior to the overhaul work.

Rehabilitating JKPGP Cranes

There are three cranes at JKPGP that consist of two 100-ton overhead cranes and one 60-ton crane in the storage building. The crane in the storage building is used for lowering equipment into the JKPGP. It is imperative that they all be in excellent working order to help improve plant reliability both for routine maintenance activities and any unscheduled or time-critical repairs.

TPP Exciter Replacement

The excitation equipment for all six generators in the TPP will be replaced with more robust and faster-acting equipment. Design of the present exciters was state-of-the-art when first supplied in the late 1970s, but the components have become obsolete.

TPP Governor Replacement

The governor equipment for all six generators in the TPP will be replaced with more robust and faster-acting equipment. As with the excitation equipment, the design of the present governors was state-of-the-art when supplied in the 1970s, but the components have become obsolete.

TPP 236-Megavolt Amperes (MVA) Transformer Replacement

Six single-phase 236-MVA transformers comprising generator step-up transformer banks K19A and K20A at the TPP will be replaced. These banks of transformers have been in continuous service since 1975. Dissolved flammable gasses are being monitored closely because of increasing levels of hydrogen, methane, ethane, and acetylene. Access to the transformer area is restricted for safety reasons.

Two TPP Elevators Rehabilitation

There are two freight and personnel elevators that will be in continual use during the TPP Overhaul. One elevator is in the Turbine Erection Bay at the southern end of the TPP and the other in the Generator Erection Bay at the northern end of the TPP. It is imperative that they both be in excellent working order prior to the overhaul work.

JKPGP Internal and External Discharge and Suction Tube Coatings

The 12 units in JKPGP each have an independent suction tube and discharge tube to convey water from Lake Roosevelt to the feeder canal for Banks Lake. Preliminary testing results indicate wearing on the coatings, leading to corrosion and decreased operational efficiency. Improvements and ongoing maintenance work should be performed in order to ensure reliable operation.

JKPGP Reverse Flow/Coaster Gate Refurbishment

The gate, stem, and cylinder for each suction tube would be removed to another location where they would be disassembled, sandblasted, inspected, repaired, and recoated as necessary. Replacement of the existing hydraulic power units is recommended due to unavailability of replacement parts. The original gates, stems, cylinders, and hydraulic systems for P1 through P6 were installed in the late 1940s. The same items for PG7 through PG12 were installed in the 1970s. Rehabilitation and replacement of these components will ensure long term reliability.

JKPGP By-Pass Valve and Piping

The by-pass valves and piping for the suction tubes were installed in the late 1940s. Exposed piping and valves will be replaced in order to provide as-new reliability.

Odessa Subarea Special Study

A Draft EIS was prepared for the Odessa Subarea. The purpose of the EIS is to evaluate alternatives to deliver surface water from the CBP to irrigated lands that currently rely on deep wells drawing upon a rapidly declining groundwater supply from the Odessa Groundwater Management Subarea. The CBP is a multipurpose water development project in the central part of the State of Washington (State), east of the Cascade Range. Lands within the Odessa Subarea that are eligible for surface water from the CBP comprise the Study Area for this EIS. The Study Area includes portions of Lincoln, Adams, Grant, and Franklin counties.

Chapter 2 ALTERNATIVES

2.1 Introduction

This chapter presents the following alternatives being considered for the JKPGP Modernization Project.

- Alternative A – No Action
- Alternative B – JKPGP Modernization (Preferred Alternative)
- Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Alternative B is the Preferred Alternative because it does not include the decoupling option that would require additional power lines and changes to the isolated phase bus. Alternative B would also require one less transformer than Alternative C, lessening the space requirement needed for the modernization.

2.2 Alternative A – No Action

Under the No Action Alternative, Reclamation would continue operating the JKPGP's six pumps and six pump-generating units under the existing maintenance program. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols.

Reclamation would continue maintenance and operation of the JKPGP pumps (P1 – P6) and pump-generating units (P/G7 – P/G12) in accordance with current agreements with irrigators and BPA. The existing maintenance schedule would be followed with allowances for emergency repairs or replacements. Maintenance and repair costs, production outages, and time needed to obtain replacement parts would continue to increase based on the aging technology and the scarcity of the replacement parts.

This action is included in the EA to evaluate effects of the action alternatives compared to current conditions and future conditions without the proposed action.

2.3 Alternative B – JKPGP Modernization (Preferred Alternative)

Under Alternative B, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units. The overhaul would include work on the unit controls, transformers, circuit breakers, and the fire protection equipment. The main portion of the overhaul work would be completed within the confines of the JKPGP. The units have begun to show age-related component wear resulting in reduced reliability and increasing frequency of repair outages and durations. The modernization program would include inspecting and refurbishing or replacing components. Depending on need, refurbishment and upgrade of the units may include, but are not limited to, replacement or repair of:

- All Units: Exciter Modernization from Original Equipment Motor-Generator Sets to Digital Exciters.
- P/G7- P/G12: Governor Modernize from Mechanical/Electrical to Digital.
- All Units: Unit Protection Modernize/Upgrade.
- P/G7 - P/G12: Unit Circuit Breaker Replacement.
- P/G7 - P/G12: Phase Reversal Switch Replacement.
- All Units: Unit Controls Modernize/Upgrade.
- KP10B Transformer (PG10-12).
- KP10A (PG7-9): Replace with Modern.
- KP10B Transformer SF6 Switchgear (PG10-12, KP10A PG7-9): Replace with Modern.
- PGP Station Electrical Service Replacement.
- P/G7 and P/G8: Redesign Wicket Gate Operating Mechanism and Replace Runners.
- P1 - P6: Dampen Vibrations in Penstock During Pumping.
- P1 – P4: Thrust Bearing Cooling Improvements for New American Hydro Impellers.
- All Units: Unit/Station CO2 Fire Protection System Replacement.
- P/G9 - P/G12: Impeller Runner Replacement to Extend Operation Head, Effect, and Power - Increase operating head range.
- P/G7 - P/G12: Generator Stator Winding Upgrade for Life and Power - May include a power up-rate.
- P5 and P6 impellers, stator cores, and winding are part of the planned non-routine maintenance items considered in association with this project.
- UP1A, which feeds P1 to P6 exciters, is slated to be part of the base case of the modernization.
- Station and unit air system upgrades are slated to be part of the base case of the modernization.
- Siphon breaker upgrades are slated to be part of the base case of the modernization.
- Station service upgrades are slated to be part of the base case of the modernization.

Other repairs may need to be performed on the generating units, but due to lack of access to the units, all items in need of repair cannot be fully anticipated. The objective is to repair and restore these machines to ensure reliable operation for an additional 30 years. The modernization is estimated to be completed in 10 to 15 years and will be conducted so as not to interfere with irrigation deliveries.

Reclamation proposes to use 1.65 acres near the southwest corner of the Industrial Area as a contractor laydown area for the modernization project. This location, which is commonly called the 'Industrial Area Salvage Yard,' measures about 480 feet long and 170 feet wide and is between the City of Grand Coulee water treatment facility and the mechanical repair shop. Although the site is just to the south of SR 155, there is no direct access from the proposed laydown area to the highway. The proposed laydown area is currently used for storage of rarely used equipment and materials being prepared for surplus. Prior to the project, these items would be relocated to another area near the Feeder Canal. No ground disturbance would occur. The location of the proposed laydown area is shown in Figure 2-1.

Figure 2-1. Proposed laydown area.

Alternative B includes all actions necessary to fully upgrade the JKPGP. Within this alternative, any number of less comprehensive phased repairs or modernization upgrades could be undertaken. While Reclamation may not ultimately choose to take all these proposed actions to upgrade JKPGP, by analyzing the environmental effects of all the actions together, Reclamation discloses the full potential consequences of any combination of actions that may be chosen.

The proposed modernization and upgrade work would improve the JKPGP's flexibility to provide water for irrigation to the CBP and to support load shaping and balancing reserves as follows:

- By allowing the JKPGP to concentrate pumping operations during periods of lighter load when electrical rates are lower, the cost effectiveness of pumping the water would be improved.
- During periods of lower demand for water, volumes exceeding the irrigation demand could be pumped to Banks Lake and used for generation peaking purposes.
- The timing of the pumping or generating could be adjusted to meet system demands, providing balancing reserves to offset variable generation or varying loads within the system.
- Providing a mechanism for improving integration of wind energy into the distribution system.

These proposed improvements and upgrades will not change the essential operation of Banks Lake according to existing protocols for irrigation, load shaping, and balancing reserves; however, they may result in more rapid transitions and/or more frequent incremental changes in daily reservoir levels while the overall reservoir levels remain within established operating norms.

2.4 Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would modernize the JKPGP pump and pump-generating units as described in Alternative B. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid. The modernization is estimated to be completed in 10 to 15 years and will be conducted so as not to interfere with irrigation deliveries.

Currently, the pump units (P1 - P6) are connected to the left powerhouse generating units G1, G2, and G3 by an isolated-phase bus that runs along the face of Grand Coulee Dam. The bus is deteriorating and demands on-going maintenance that can only be completed in the winter to avoid taking the pumps off-line during the critical irrigation season. The decoupling of the JKPGP from the left powerhouse would allow Reclamation to decommission the bus and alleviate these maintenance and related safety issues. Decoupling would require one additional transformer. Depending on the space requirements of the new and replacement equipment needed for the decoupling portion of the modernization project, it may be necessary to relocate the fire station that is presently located in JKPGP. The preferred new location of fire station is near the back entrance gate of the Industrial Area. There are two options for the new firehouse; one being a single story 100-foot by 100-foot building and the other being a two-story 50-foot by 100-foot building.

Chapter 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes existing physical, biological, natural, social, and cultural resources that could be affected and identifies any potential impacts, beneficial or adverse, to those resources that could result from each of the three alternatives.

The No Action Alternative (Alternative A) describes the conditions of the JKPGP if the Modernization Project is not done and provides the basis to compare the two action alternatives (Alternatives B and C).

The resources analyzed include hydrology, water quality, threatened and endangered (T&E) species, fisheries, wildlife, hazardous or toxic wastes, visual quality, power, recreation, transportation, socioeconomics, environmental justice, cultural resources, Indian trust assets (ITAs), and Indian sacred sites.

3.1 Hydrology

3.1.1 Affected Environment

The purpose of this analysis is to describe the potential effects to Banks Lake operations and lake elevations as a result of the modernization of the JKPGP. One of the major requirements of the JKPGP is to provide water for irrigation to the CBP via Banks Lake. The CBP currently serves about 671,000 acres in east central Washington with an average annual delivery of around 2.5 million acre-feet of irrigation water through Banks Lake. Banks Lake is an off-stream reservoir that was constructed for and serves as an equalizing and storage reservoir to manage the diversion of water from the Columbia River for irrigation within the CBP. The reservoir provides significant temporary storage capacity and decouples the timing of water releases into the Main Canal at Dry Falls Dam from the timing of diversions from the Columbia River into the project via the JKPGP. Water can also be released from Banks Lake back through the JKPGP and down to Lake Roosevelt to generate power. Over the last decade, the use of Banks Lake by the BPA for load factoring combined with the required five-foot August salmon flow augmentation drawdown have resulted in the reservoir level being operated generally within the range of 1565 to 1570 feet above mean sea level (AMSL).

Changes in Banks Lake water levels are the only potential significant hydrologic effect anticipated from the JKPGP modernization and are the focal point of this analysis. Potential effects to Lake Roosevelt were also considered but since Lake Roosevelt is a much larger body of water when compared to Banks Lake, effects to Banks Lake elevations will be the focal point of this analysis. As will be seen in the following analysis, any minor changes in Banks Lake elevations as the result of the modernization of the JKPGP would translate into negligible changes in Lake Roosevelt elevations.

Banks Lake Operations and Lake Levels

Historic Operations

Throughout the life of the CBP, the water level in Banks Lake has fluctuated throughout its 30-foot range of active storage. This range is defined as elevation 1540 feet AMSL to 1570 feet AMSL. There have been periods of greater water level fluctuation as well as periods of stable water levels. Prior to 1980, Banks Lake was managed with a relatively large operating range as seen in Figure 3-1. Starting around 1980, the operating range was reduced considerably to help minimize local impacts (fisheries and recreation) realized around the lake. Since 1987, Banks Lake has been operated within the top 5 feet with a few exceptions including the deep maintenance draft that occurred in 1994 (a maintenance draft is scheduled for 2011 to 2012 which will temporarily draft Banks Lake to an elevation of around 1540 feet).

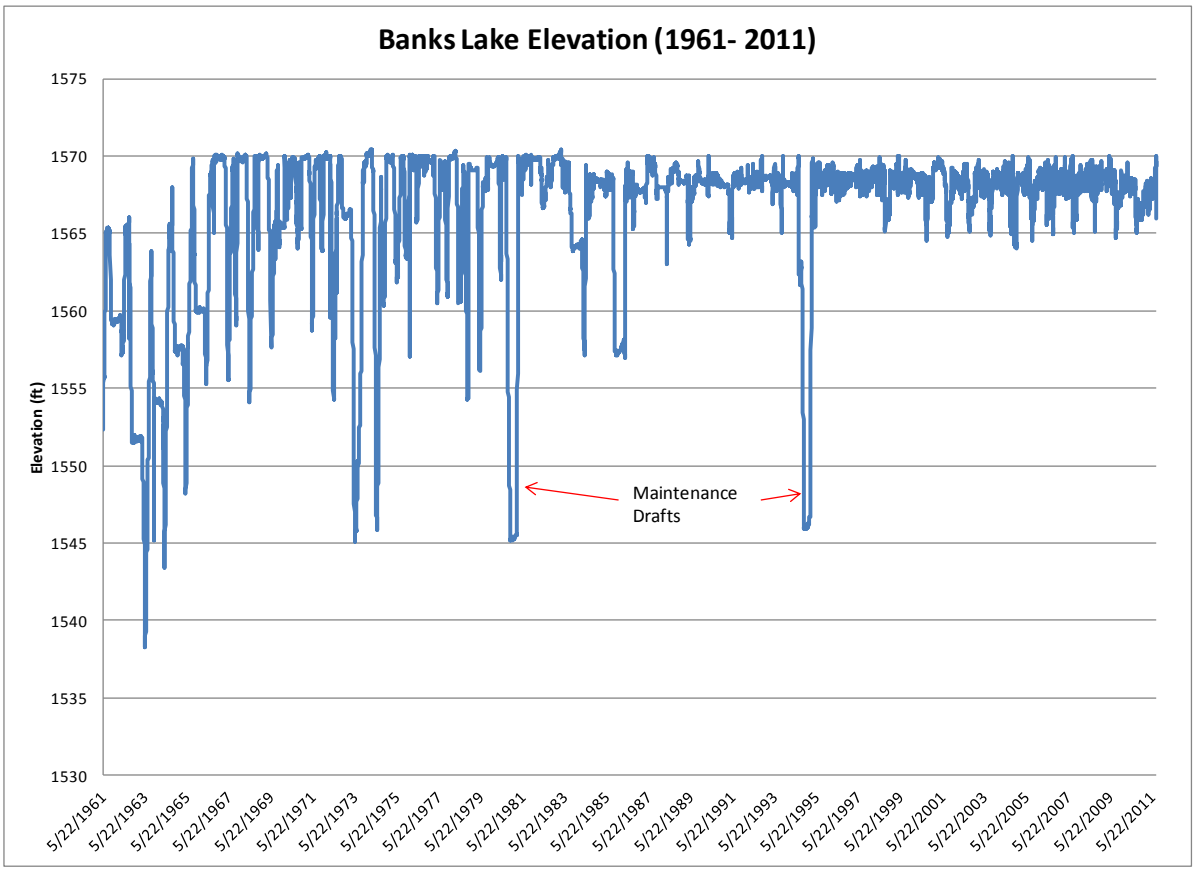

Figure 3-1. Historic Banks Lake elevation (1961 - 2011).

Figure 3-2 shows Bank Lake elevations since 1995. Since the last maintenance draft in 1994, Banks Lake has predominately operated between elevation 1565 feet and elevation 1570 feet. Starting in 2000, Banks Lake began drafting to elevation 1565 feet by August 31 every year for summer flow augmentation for juvenile salmon out-migration, as required by the Biological Opinion. The August draft to elevation 1565 feet is accomplished by reduced pumping from Lake Roosevelt which keeps more water in the Columbia River during August. Table 3-1 shows Banks Lake elevations and the storage volume associated with those elevations. Table 3-1 shows there is 133,600 acre-feet of water between elevations 1565 feet and 1570 feet.

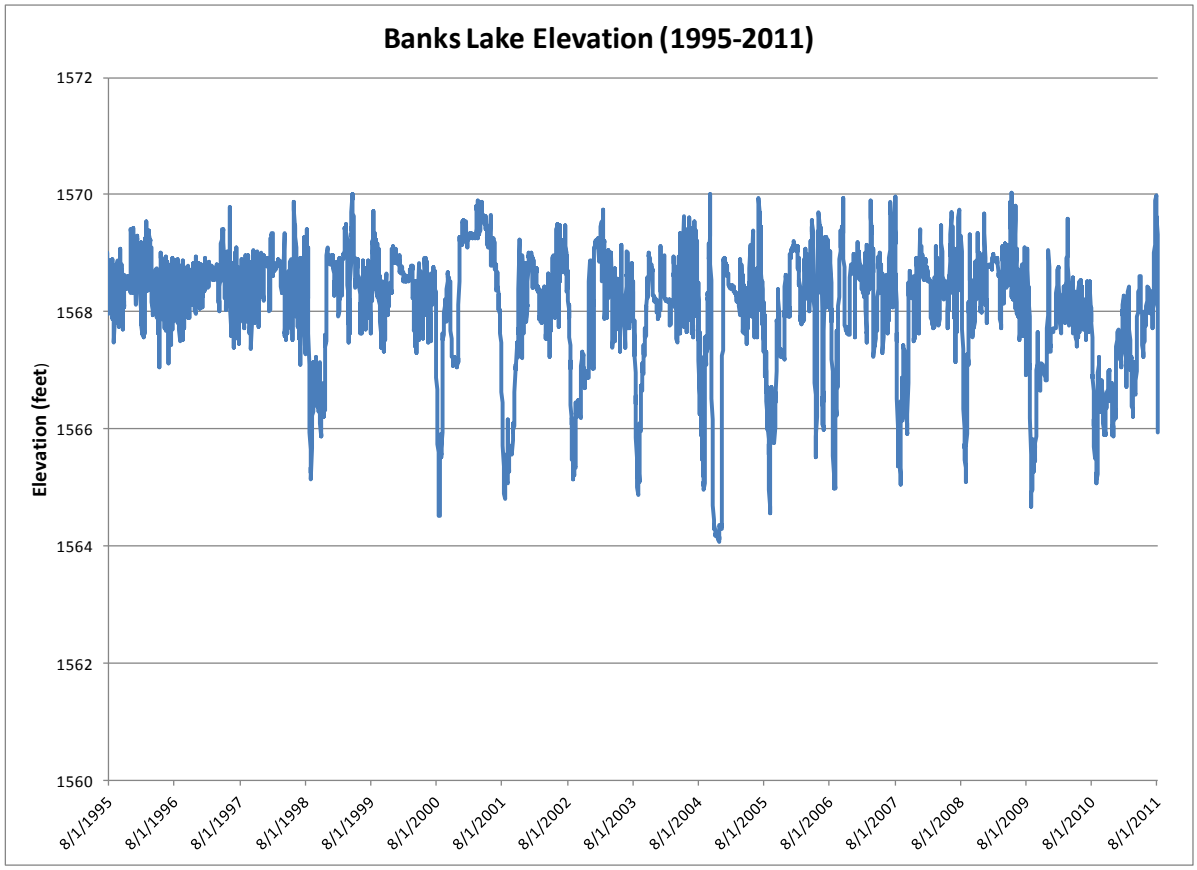

Figure 3-2. Historic Banks Lake elevations (1995 - 2011).

Table 3-1. Banks Lake live storage.

Water Surface Elevation (feet)	Storage (acre-feet)
1517.2	0
1520	28,200
1525	94,100
1530	168,100
1535	253,900
1540	347,500
1545	448,200
1550	556,100
1555	671,000
1560	792,300
1565	919,500
1570	1,053,100

As previously stated and as shown in Figure 3-2, Banks Lake has predominately been operated between elevation 1565 feet and 1570 feet in recent years. In fact, with the exception of the August draft to elevation 1565 feet, Banks Lake is above elevation 1567.5 feet most of the year. Figure 3-3 and Figure 3-4 are elevation duration curves for the April to July and the October to March timeframes. The elevation duration curves show how much of the time Banks Lake is above a certain elevation. For example, since 1995, Banks Lake has been operated above elevation 1567.5 feet greater than 90 percent of the time from April to July. For the October to March timeframe, Banks Lake has been operated above elevation 1567.5 feet greater than 80 percent of the time since 1995.

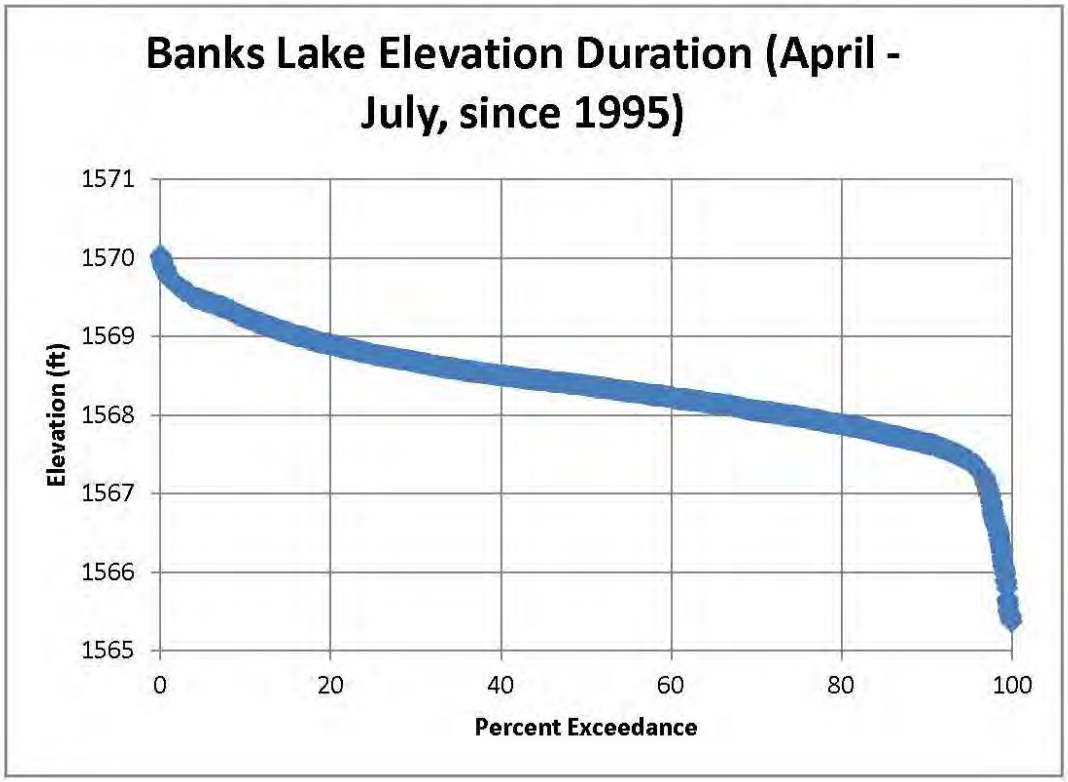

Figure 3-3. Banks Lake elevation duration (April - July, 1996-2011).

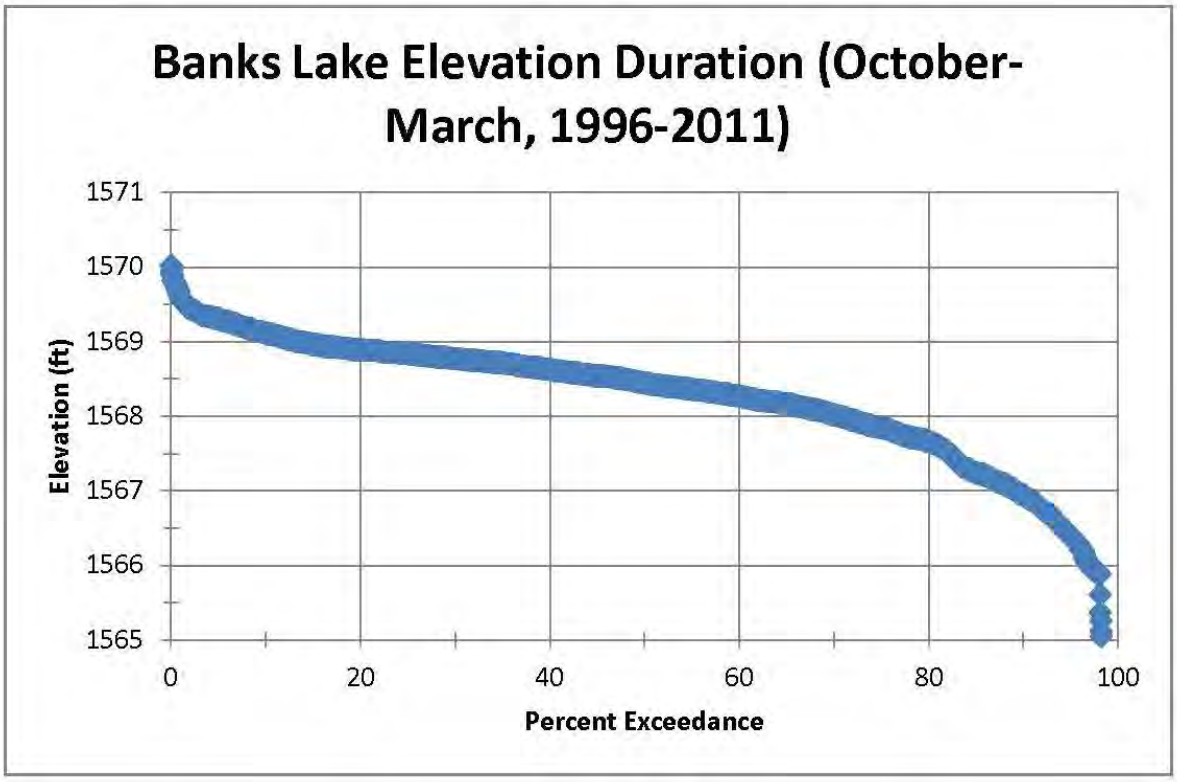

Figure 3-4. Banks Lake elevation duration (October - March, since 1995).

Current Operations

Current operations at Banks Lake result in the lake elevation typically within the top 5 feet (1565 feet to 1570 feet). Water Year (WY) 2010 was a typical "normal" year for Banks Lake operations and lake elevations. Figure 3-5 shows Banks Lake elevations for WY 2010. There are some day-to-day and week-to-week changes in lake elevations but the lake elevation remained within the top 5 feet year round.

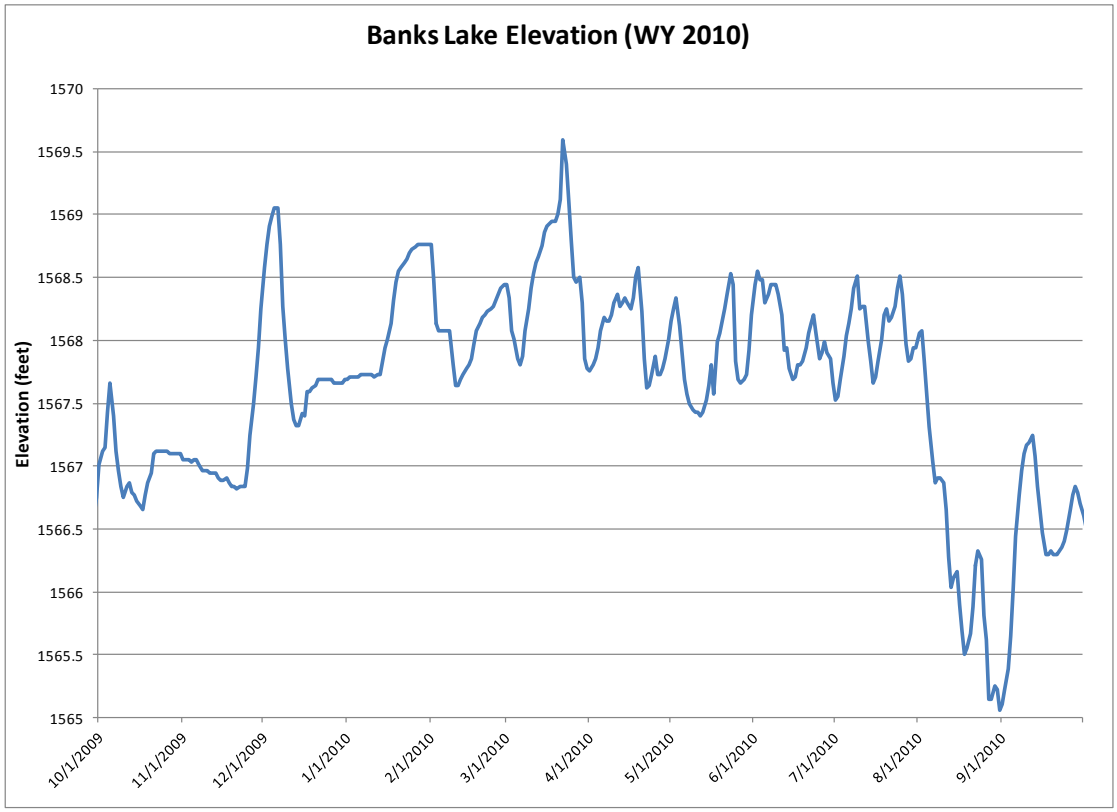

Figure 3-5. Banks Lake elevation, WY 2010.

Figure 3-6 shows the daily change in Banks Lake water surface elevation for WY 2010. Positive increases in elevation indicate that pumping into Banks Lake from Lake Roosevelt was more than the combination of irrigation withdrawals and generation releases through the pump generators (PGs). The opposite is true for negative changes in elevation. Figure 3-6 also shows that there are frequent daily changes in elevation throughout the year; but overall, the positive changes offset the negative changes and the lake elevation remained within the top 5 feet. For WY 2010, the maximum daily negative change was 7.3 inches and the maximum daily positive change was 5.6 inches. The maximum weekly (Mon-Sun) negative change was 20.8 inches and the maximum weekly positive change was 14.6 inches.

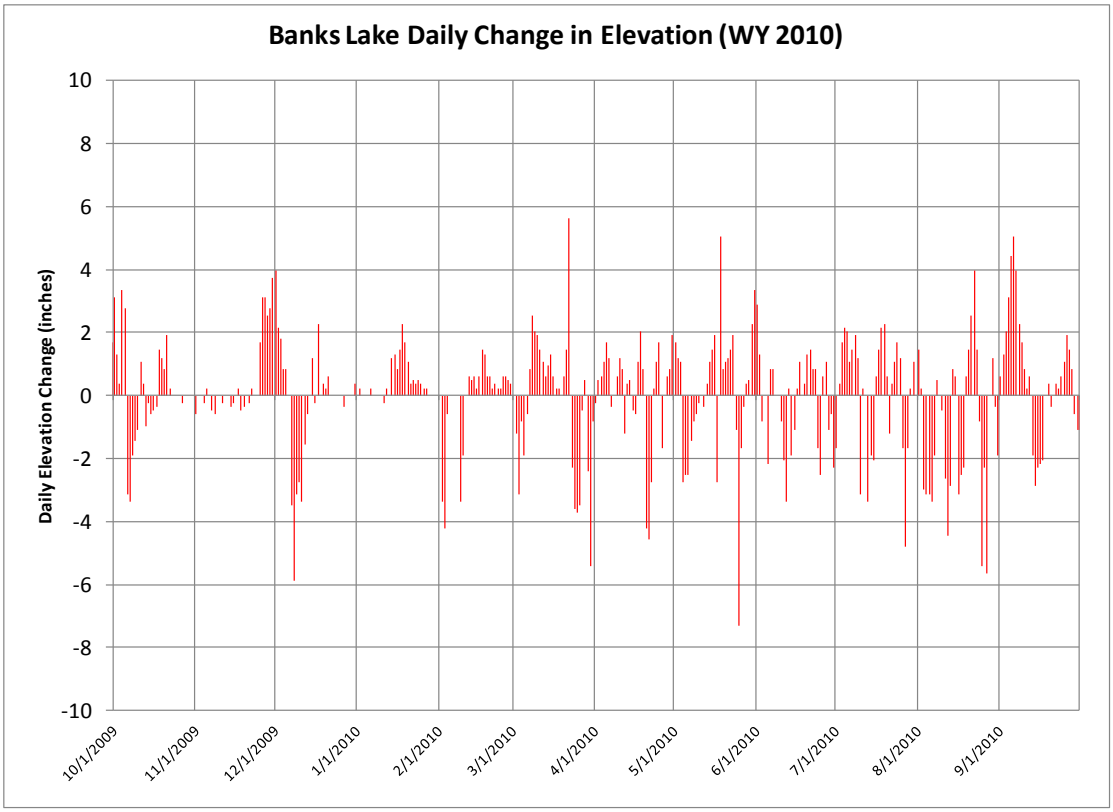

Figure 3-6. Daily change (in inches) in Banks Lake elevation (WY 2010).

The majority of the pumping up to Banks Lake typically occurs during the light load hours (LLH - night time, weekends and holidays) when energy costs are normally lower than during the heavy load hours (HLH - weekdays). The opposite is true for generation releases back to Lake Roosevelt through the PGs. Generation usually takes place during HLH when energy costs are comparatively higher. Because pumping needs increase during the irrigation season to keep up with withdrawals, there are times when some pumping may be required during HLH. Table 3-2 shows monthly average pumping to Banks Lake. Note the increase in pumping amounts during the irrigation season (mid-March through mid-October).

Table 3-2. Monthly average pumping into Banks Lake (2005 - 2009).

Pumping to Banks Lake (cfs)	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2611	678	987	280	334	1409	6602	7652	7690	8803	6133	6607

Table 3-3 shows total JKPGP pumping capacity at various Banks Lake and Lake Roosevelt elevations, with all six pumps and six PGs in service. Note that there are significant decreases in pumping capacities between Lake Roosevelt elevations of 1260 feet to 1270 feet and elevations 1240 feet to 1250 feet. This is due to PG 7 and 8 not being able to pump below a Lake Roosevelt elevation of 1263 feet and PG 9 to 12 not being able to pump below an elevation 1241 feet.

Table 3-3. JKPGP pumping capacity with all pumps and PG's on-line.

JKPGP Pumping Capacity (cfs)			
Lake Roosevelt Elevation (feet)	Banks Lake Elevation (feet)		
	1560	**1565**	**1570**
1290	22,600	22,200	21,900
1280	21,900	21,500	21,100
1270	21,100	20,700	20,300
1260	16,500	16,200	15,800
1250	15,800	15,500	15,100
1240	8,800	8,600	8,400
1230	8,300	8,100	7,900
1220	7,900	7,700	7,400
1210	7,400	7,000	6,600
1208	7,200	6,900	6,500

The current recognized and accepted operating range of Banks Lake is elevation 1565 feet to 1570 feet. However, there are several times during the year when the preferred operating range is elevation 1567.5 feet to 1570 feet. The following is a summary of the current Banks Lake elevation operating guidelines.

Fall/Winter (September 1 – March 31):

Banks Lake to be operated within elevation range of 1565 feet to 1569 feet. However, if there is not a threat of freezing weather, Banks Lake can operate higher than 1569 feet (up to elevation 1570 feet) after coordination with Reclamation.

Spring/Summer (April 1 – August 31):

April 1 – prior to Memorial Day weekend:

Banks Lake to be operated within elevation range of 1565 feet to 1570 feet

Memorial Day weekend:

Banks Lake to be operated within elevation range of 1567.5 feet to 1570 feet

After Memorial Day Weekend – late June:

Banks Lake to be operated within elevation range of 1565 feet to 1570 feet

Late June – July 31:

Banks Lake to be operated within elevation range of 1567.5 feet to 1570 feet.

August 1 – August 31:

Banks Lake to be near the top end of the operating range on August 1, then drafted to elevation 1565 feet by August 31.

These elevation guidelines are to be followed when possible. However, there may be times when Banks Lake will need to be operated outside the listed guidelines. For example; pumping capability, whether limited by outages or the elevation of Lake Roosevelt, may not be able to keep pace with irrigation withdrawals from Banks Lake. In this case, Banks Lake may need to draft below the elevation guidelines in order to satisfy irrigation requirements. Other infrequent circumstances (e.g. maintenance drafts, power emergencies, etc.) could also result in Banks Lake operating outside of the elevation guidelines.

3.1.2 Environmental Consequences

Alternative A - No Action

Under the No Action Alternative, Reclamation would continue operating the JKPGP's six pumps and six pump-generating units under the existing maintenance program. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. Banks Lake operations and lake elevations would be as described in the previous Current Operations section.

Alternative B - JKPGP Modernization (Preferred Alternative)

Under Alternative B, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units. The overhaul would include work on the unit controls, transformers, circuit breakers, and the fire protection equipment.

The BPA has contracted with HDR Engineering, Inc to perform several studies to evaluate potential operational scenarios. A seasonal statistical assessment of the available upward and downward balancing reserves was generated for each scenario, including the resulting changes in Banks Lake elevations as a result of the modernization of the JKPGP (Alternatives B and C). Balancing reserves can be defined as generation flexibility; either the ability within the hour to increase generation or decrease pump loads (inc) or the ability to decrease generation or increase pump loads (dec), in order to balance generation with loads on the system and maintain a reliable grid. Based on input from the BPA Operations staff, the studies were based on JKPGP's ability to provide balancing reserves for specified periods of time, 6 to 16 hours of inc reserves (depending on time of year) and 4 hours of dec reserves. These specified periods of time are consistent with the operations staff experience on deployment of balancing reserves. Two different scenarios were analyzed to determine the possible effects to the water surface elevations at Banks Lake.

The target elevations used in the following scenarios are used to more clearly illustrate potential additional maximum and minimum lake elevation fluctuations as the result of JKPGP modernization (Alternatives B and C). The target elevations shown do not represent typical lake elevations; typical Banks elevations are more variable throughout the year as shown in Figure 3-6.

In the first scenario, the JKPGP is operated at a "flat" pumping rate to meet anticipated daily irrigation demands with a target elevation of 1568.5 feet for Banks Lake. "Flat" means that the pumps are operated at a constant rate throughout the day to provide the daily water requirements in a 24-hour period. For this scenario, maximum dec capability within a 4-hour time horizon was required for the entire year, and maximum inc capability varied from a 6-hour time horizon for most of the year, to a maximum 16-hour time horizon in April, May, and June. Analysis of this scenario shows that the maximum deviation above the target elevation was approximately three inches and maximum deviation below the target elevation was about 4½ inches. Figure 3-7 shows the target elevation and the maximum and minimum deviation from the target for this first scenario.

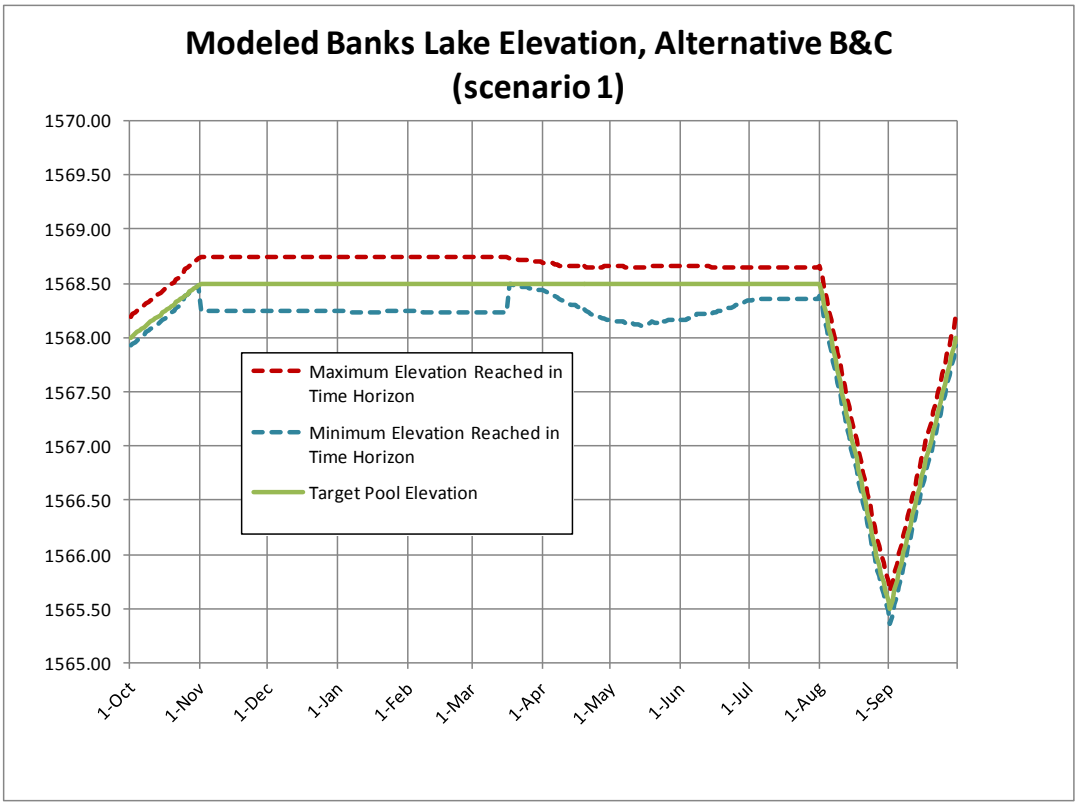

Figure 3-7. Modeled Banks Lake elevation showing target, max, and min elevations under Alternatives B and C, Scenario 1.

This operational scenario shows that the JKPGP would have significant capability in providing inc and dec system reserves without significant impact to Banks Lake elevations. It should be noted that the day-to-day fluctuation of Banks Lake would continue as in past years, but the fluctuation due to providing system reserves would remain within a few inches of this historical operating elevation. To more clearly illustrate this point, Figure 3-8 shows historic Banks Lake elevations in WY 2010, along with the maximum and minimum Banks Lake elevations that could occur under Alternatives B and C.

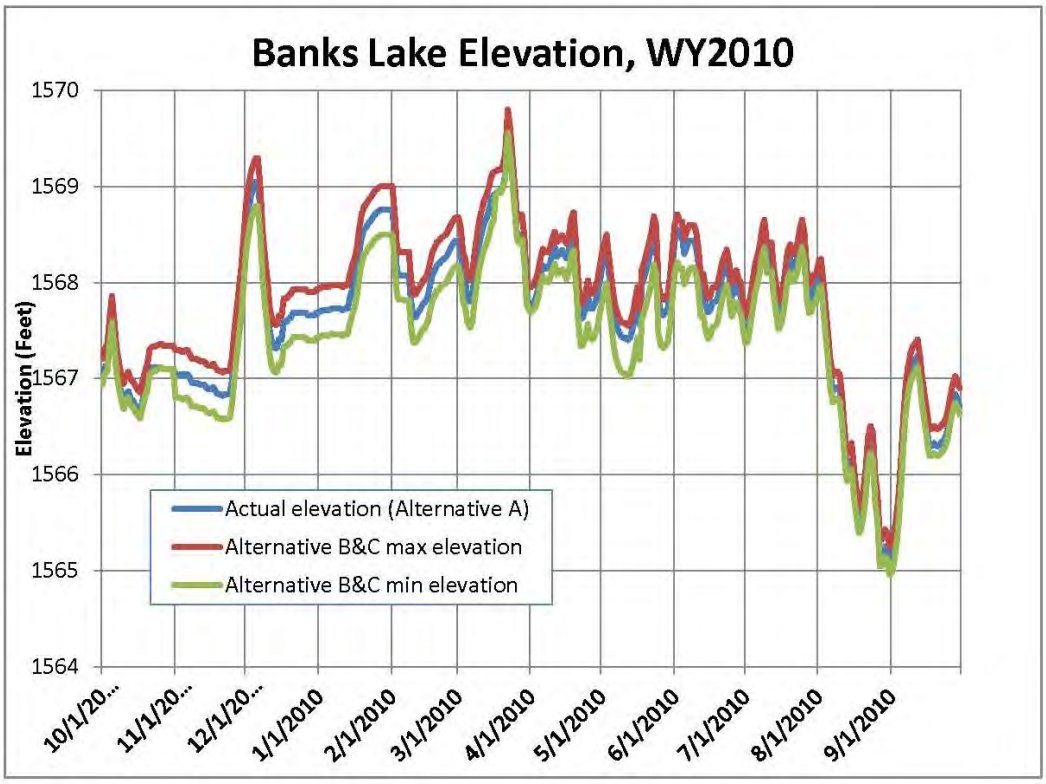

Figure 3-8. Banks Lake actual elevation for WY 2010 along with Alternative B and C max and min elevations.

The second scenario that was analyzed used the same time horizons for inc (6 to 16 hours depending on time of year) and dec (4 hours year-round) capability, but pumping was not held constant over the course of the day. The goals in this scenario were to meet daily irrigation requirements and attempt to provide 250 average megawatts of inc capability year-round. This results in more variation of the target elevation, but still within the bounds of the normal operating range. Figure 3-9 shows that Scenario 2 has similar deviations above and below the target elevation as in Scenario 1. Maximum deviation above the target elevation is approximately 3 inches and maximum deviation below the target elevation is about 4½ inches. Once again this scenario shows that the JKPGP would have significant capability in providing inc and dec system reserves without significant impact to Banks Lake elevations.

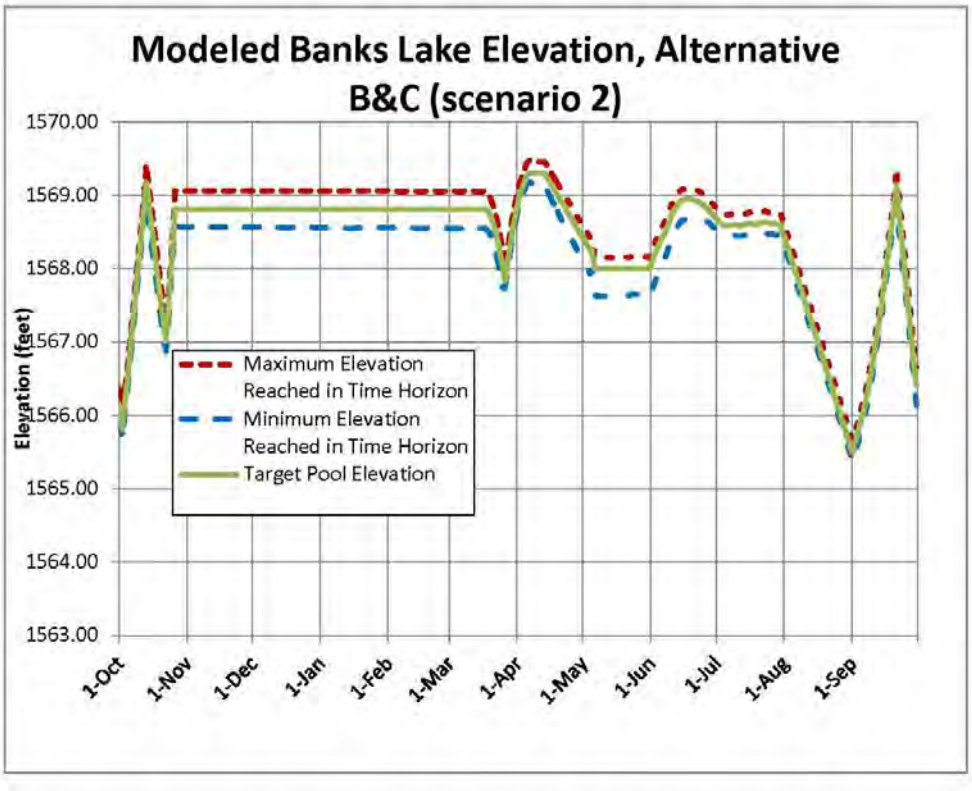

Figure 3-9. Modeled Banks Lake elevation showing target, max, and min elevations under Alternatives B and C, Scenario 2.

In summary, model results show that the proposed modernization of the JKPGP would not significantly change Banks Lake elevations. Under the proposed modernization (Alternatives B and C):

- Banks Lake elevations, throughout the year, would remain within the operating range of elevation 1565 feet to elevation 1570 feet.
- Irrigation deliveries to the CBP would be unaffected.
- The summer draft to elevation 1565 feet for flow augmentation would be unaffected.
- There could be some increase in daily fluctuations in lake elevations, but daily changes in elevations would be within several inches of what currently occurs.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would overhaul and modernize the JKPGP pump and pump-generating units as described in Alternative B. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid.

The only difference between Alternative B and C is the decoupling of the pumps from the left powerhouse, which would not affect Banks Lake operations. Thus, the effects to Banks Lake elevations for Alternative C are the same as for Alternative B.

3.1.3 Cumulative Impacts

Cumulative impacts are impacts on the environment that results from the incremental consequences of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes these actions. Cumulative impacts can result from individually minor but collectively significant action taking place over a period of time. The following is a brief description of projects and/or actions that may have an impact on Banks Lake water levels.

The Odessa Subarea Special Study

The Odessa Subarea Special Study proposes to substitute CBP surface water from the Columbia River to replace declining groundwater supply that is used for irrigation in the Odessa Subarea (Reclamation 2010a). This proposal is currently undergoing environmental review under the NEPA and the Washington State Environmental Policy Act. The Study's Final EIS has not been completed, thus this proposal does not meet the test for being a reasonably foreseeable future action subject to analysis of cumulative effects under NEPA. Nonetheless, this EA considers the potential effects of the Study's proposed action alternatives in order to acknowledge the potential effects at Banks Lake reservoir.

The Odessa Subarea Special Study Draft EIS evaluated eight action alternatives covering a range water supply and delivery options for the Odessa Subarea. These alternatives could have a wide range of potential effects on operations and water levels at Banks Lake reservoir. In order to store and move the required additional water through Banks Lake, the reservoir would be subjected to substantially greater fluctuations than is currently the case during and immediately following the spring-summer-fall irrigation season.

Modeling and analyses for the eight action alternatives reveal that during years with average levels of precipitation, Banks Lake could be drawn down by 5.1 to 13.5 feet at the end of August compared to the current 5-foot drawdown under the No Action condition. This would translate to an elevation of approximately 1564.9 feet to 1556.5 feet AMSL. In drought years the drawdown could range from 5.5 to 18.3 feet at the end of August, corresponding to an elevation of approximately 1564.5 feet to 1551.7 feet AMSL. Under some drought and/or dry year conditions, the reservoir might not be able to be fully refilled during the following year.

It has been shown in the previous sections that the proposed modernization of the JKPGP would not have a significant effect on Banks Lake elevations. There could be some increase in daily fluctuations in lake elevations but daily changes in elevations would be within several inches of what currently occurs. This would also be true if the proposed modernization of the JKPGP is combined with any of the action alternatives of the Odessa Subarea Special Study.

Based on the two scenarios in the Environmental Consequences section, Banks Lake elevations may vary a maximum of 3 inches above or 4.5 inches below any of the action alternatives of the Odessa Subarea Special Study.

3.2 Water Quality

3.2.1 Affected Environment

Water quality of Banks Lake and Lake Roosevelt are regulated by the State of Washington Department of Ecology (Ecology) under the framework of the Clean Water Act. Washington has established water quality standards for specific physical and chemical parameters in order to provide suitable conditions to support designated and potential uses. Some of these uses include agriculture water supply, domestic water supply, stock water supply, industrial water supply, commercial navigation, boating, wildlife habitat, harvesting, and aesthetics (Ecology 2006). The designated uses of Lake Roosevelt include core salmonid summer habitat and extraordinary primary contact recreation, as well as nine additional standard uses. Extraordinary primary contact recreation is a designated use for some high quality or special waters of the state. This designation and the associated water quality standards provide more stringent protection against waterborne disease than primary contact recreation standards. There appear to be no additional uses designated for Banks Lake. As a result, the default designated beneficial uses apply to Banks Lake. These include: salmonid spawning, rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values.

Section 303(d) of the Clean Water Act requires states and tribes to identify water bodies that do not meet water quality standards. States and tribes must publish a list of these impaired waters every two years. The most recent approved 303(d) list for the State of Washington is the 2008 Integrated Report approved by U.S. Environmental Protection Agency (EPA) on January 29, 2009 (Ecology 2009a). For lakes, rivers, and streams identified on this list, states and tribes must develop water quality improvement plans known as total maximum daily loads (TMDLs). These TMDLs establish the amount of a pollutant a water body can carry and still meet water quality standards. Water temperature was identified as one of the primary water quality problems in the Columbia River segments near Grand Coulee Dam, while low dissolved oxygen and PCBs (a persistent organic pollutant with toxicities similar to dioxins) were also identified as water quality concerns. Banks Lake has also been listed for PCBs and 2,3,7,8 TCDD, another dioxin like substance. Fish tissue samples collected from Banks Lake in (Ecology) 2003 indicated that Mercury, PCBs, PCDD (dioxins), and total DDT (a legacy pesticide) were elevated above National toxics rules, or EPA screening levels in the lake whitefish and rainbow trout populations sampled from the reservoir. Yellow perch and walleye were shown to exceed the screening level set by EPA for subsistence fisheries.

In 2004, Ecology, with the EPA and in cooperation with the Spokane Tribe of Indians, developed the total dissolved gas (TDG) TMDL for the Mid-Columbia River and Lake Roosevelt, which included the areas above and below Grand Coulee Dam (Ecology 2004).

Applicable Water Quality Standards

The water quality criteria (narrative and numeric) that protect the designated and potential uses for Banks Lake and Lake Roosevelt are discussed below. Chapter 173-201A Washington Administrative Code (Ecology 2006) contains the water quality standards for the State of Washington. Water temperature is measured by the 7-day average of the daily maximum temperatures (7-DADMax).

Table 3-4 lists the temperature criteria for each of the aquatic life use categories designated for Lake Roosevelt and Banks Lake.

Table 3-4. Lake Roosevelt and Banks Lake aquatic life temperature criteria.

Aquatic Life Temperature Criteria in Fresh Water Category	Highest 7-DADMax
Core Summer Salmonid Habitat	16°C (60.8°F)
Salmonid Spawning, Rearing, and Migration	17.5°C (63.5°F)

TDG is measured in percent saturation, and does not apply when the river flow exceeds the seven-day, ten-year frequency flood, and may be adjusted to accommodate fish passage. All other times, TDG must not exceed an average of 110 percent.

Both the CCT and the Spokane Tribe have developed water quality standards that are applicable to portions of the affected area. These standards are similar to the Washington State water quality standards. Both Tribes' standards for TDG and dissolved oxygen are set at 110 percent of saturation and 9.5 milligrams per liter (mg/L) respectively (Spokane Tribe 2003; CCT 2009). The CCT has established temperature criteria of 16 °C for the Columbia River and Lake Roosevelt (CCT 2009), while the Spokane Tribe's temperature criteria is set at a 7-DADMax of 18.5 °C. The most stringent standards for temperature are the Washington State standard for the Lake Roosevelt and Banks Lake portions. These standards are set at 16 °C 7-DADMax.

Banks Lake

Water quality conditions in Banks Lake currently do not support all the potential uses (Banks Lake currently does not have designated beneficial uses). Elevated PCBs and elevated 2,3,7,8 TCDD have been determined as the factors affecting the potential uses (Ecology 2009a). As part of an on-going reservoir-monitoring program for operating projects, Reclamation began collecting water quality data from Banks Lake annually in 2009. Following 2009, Reclamation continued to monitor Banks Lake once a year, during mid-summer. These

samples are analyzed for chemical, physical, biological, and trace metal parameters. Water temperature data indicate that Banks Lake is isothermal (the same temperature through the lake's depth profile) during the late July sampling period and rarely exceeds 16° C throughout the water column. Dissolved oxygen levels are also adequate throughout the water column with the lowest recorded concentration of 9.3 mg/L. The remainder of the depth profiles oxygen ranged from 9.3 to 11.4 mg/L. Nutrient concentrations are also very low in Banks Lake. Bio-available phosphorus concentrations were below detection limits of 0.003 mg/L and total nitrogen compounds were found to be less than 0.18 mg/L. In addition, sediment concentrations were near background levels of 1 to 3 mg/L of total suspended solids.

Lake Roosevelt

Water quality conditions in Lake Roosevelt currently do not support all the designated and potential uses. Elevated TDG, elevated water temperature, and low levels of dissolved oxygen have been determined as the factors affecting the designated and potential uses (Ecology 2009a). As part of an on-going reservoir-monitoring program for operating projects, Reclamation collects water quality data every month from Lake Roosevelt. These samples are analyzed for chemical, physical, biological, and trace metal parameters. In addition, Reclamation has installed fixed monitoring locations (Hydromet Stations) at the international boundary and the forebay of the reservoir. At these locations, surface water temperature is collected at midnight every day and TDG information is collected every 15 minutes throughout the year.

TDG levels can be increased above the water quality criteria by spilling water over spillways of dams. There are other ways that TDG may also be elevated. These include passing water through turbines, low-level ports, fishways, or locks; and natural processes such as low barometric pressure, high water temperatures, or high levels of aquatic plant activity and growth. However, the vast majority of elevated TDG levels found in the Columbia River are caused by spills from dams. In some cases, dams located upriver may pass elevated TDG down river because there is not enough time or water turbulence to dissipate the elevated gasses. This is the case with Lake Roosevelt. The Hydromet monitoring station at the international border shows TDG exceeding State and Tribal water quality standards entering the reservoir (Table 3-5). As this water passes through Lake Roosevelt there is little change in TDG recorded at the forebay Hydromet station.

Table 3-5. Monthly average TDG percentage at the United States-Canada border and the Lake Roosevelt forebay from January 1999 to April 2009.

Month	International Boundary	Lake Roosevelt Forebay
January	102.25	98.93
February	101.84	100.20
March	103.43	102.49
April	108.43	106.42
May	116.88	110.68
June	122.31	114.46
July	115.05	114.39

Month	International Boundary	Lake Roosevelt Forebay
August	110.67	108.90
September	105.71	103.98
October	103.00	100.20
November	103.08	98.52
December	105.89	95.81

Water temperature measured at the forebay Hydromet station indicates that water temperatures often exceed water quality criteria. Generally, the surface waters of the reservoir reach 16 °C mid- to late July and remain above 16°C until the end of October. However, this is typical for lakes and reservoirs. Several reports and studies indicate that the upstream portion of Lake Roosevelt does not stratify while the downstream segment of the reservoir near the dam weakly stratifies. As with TDG issues in Lake Roosevelt, a majority of the temperature issues are the result of upstream effects being passed through the reservoir due to the very low retention time in the reservoir. Retention times have been estimated to be between 20 and 60 days, depending on the time of the year and if the reservoir is being drawn down for flood control (BPA 1996).

3.2.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

Water quality impact analysis is based on available water quality data and State or Tribal water quality standards. Water quality standards were described previously.

Alternative A - No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. Existing water quality conditions are not expected to change because of the no action alternative. The level of Banks Lake would be maintained within the current five-foot operating window. Under this alternative, large drawdown events are limited and occur at Banks Lake during scheduled maintenance. In a typical year like 2010, the maximum daily variation in lake elevation under the current operating schedule has resulted in less than 7.3 inches of drawdown and a maximum of 5.6 inches of refill. Total suspended sediment from eroding banks can occur during large drawdown down events. However, within these small daily incremental elevation changes, increased sediment production has not been seen under the current operating elevation levels. In addition, due to the flow required to meet irrigation demands, the water's residence time in Banks Lake would remain low, minimizing, as much as possible, the solar exposure from the larger surface area of Banks Lake. As a result, the lake's temperature should remain isothermal and below State or Tribal water quality criteria.

The No Action Alternative would not change the concentrations or mobilization of the elevated PCBs and 2,3,7,8 TCDD found in the fish tissues of Banks Lake.

The environmental consequence of the No Action Alternative on temperature conditions within Lake Roosevelt are not expected to change. The 22,000 cfs pump capacity and 14,000 cfs generating capacity should not impact the temperature regime in Lake Roosevelt due to the magnitude of water passing through Grand Coulee Dam. Water quality conditions in Lake Roosevelt would not change measurably as the capacity of the JKPGP should remain within current conditions.

Alternative B – JKPGP Modernization (Preferred Alternative)

No water quality impacts are anticipated because of the Reclamation plan to overhaul the JKPGP. Current operation schedules dictate that Banks Lake elevation change is limited to a 2.5- to 5-foot change. By completing the overhaul and modernization, the JKPGP will operate more efficiently and be able to respond to power balancing needs over a shorter timeframe. As a result, water could be pumped to Banks Lake and used to generate within a 4 to 6 hour window. Consequently, there may be greater day-to-day variation within the pool level, but operations would be limited to the same 2.5- to 5-foot operating window currently seen at the lake. As mentioned previously, in a typical year like 2010, the maximum daily variation in lake elevation under the current operating schedule has resulted in less than 7.3 inches of drawdown and a maximum of 5.6 inches of refill. It has been estimated that the modernization and the more efficient power balancing may increase day-to-day pool level variation by up to 6 inches within the current operating level. It has been suggested that increased shoreline erosion may occur outside of the 2.5- to 5-foot operating window, but none of the alternatives propose increasing the operating window beyond the 5-foot margin. In addition, wave heights within the reservoir and seiches (i.e., internal waves that oscillate back and forth through a lake) due to wind induced currents may currently exceed the anticipated additional 6-inch day-to-day variation. Banks Lake may be prone to seiches due to its elongation and shallowness. In addition, the relatively long 21-mile fetch (the longest straight line direction that wind can blow unobstructed across a water body) of the reservoir along the southwesterly axis makes the reservoir prone to wind induced waves greater than 6 inches. These factors may obscure the 6-inch day-to-day variation. The project will not result in the addition or change in other pollutants of concern concentrations or expression such as temperature, PCBs, and dioxins.

The water quality conditions within Lake Roosevelt are not expected to change due to Alternative B. Joint operations with the Corps and Chief Joseph Dam will continue. These operational measures are designed to minimize spill at Grand Coulee Dam and consequently minimizing TDG generation below Grand Coulee. Grand Coulee is more prone to generate TDG when spill through the outlet works occurs in comparison with the TDG generated by spill over Chief Joseph Dam. The modernization and the current pumping and generating volumes at JKPGP are small in comparison with spill volumes and generating capacity at

Grand Coulee. Additionally, the typical spill season occurs prior to the irrigation season. Consequently, only a limited amount of water can be moved to Banks Lake to offset spill at Grand Coulee, and would eventually be returned to Lake Roosevelt within the day.

Due to power demand, current operations have not allowed for selective operations at Grand Coulee for temperature modification in the Columbia River downstream from the dam. In addition, Lake Roosevelt only weakly stratifies for a short period during the summer. This stratification quickly breaks down due to the large powerplant capacity and high flows in the Columbia River and the reservoir's thermal structure is similar to the thermal structure of the inflows from the Columbia River. The thermal structure of Lake Roosevelt will not change during the modernization and up-grading of the individual JKPGP units. The current depth of the inlet and outlet works for the JKPGP and the small volumes of water moving between Banks Lake and Lake Roosevelt should not affect the weakly stratified reservoir, and for the remainder of the year, the short retention time in Banks Lake should preclude any significant warming or cooling of water returning to Lake Roosevelt. As a result, the effect on water temperature by operations throughout the modernization period will be similar to the effect on water quality conditions of the no action alternative.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, water quality changes in Banks Lake and Lake Roosevelt are anticipated to be the same as described for Alternative B.

3.2.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.2.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Banks Lake

Several large projects are slated in the area surrounding Banks Lake, most notably the overhaul of the TPP at Grand Coulee. This project could have impacts to Banks Lake's pool level during the spill period. This would be especially true during very high flow events in the Columbia River as was seen in the 2011 spill period. When Columbia River discharge exceeds generation needs or generation capabilities are taken offline, more pressure is put on the pumping facilities at JKPGP to move water to Banks Lake to help minimize spill at Grand Coulee. However, given the small pump capacity relative to Columbia River flows, the effect is small. In addition, this ability is limited to the operating levels of Banks Lake and the ability to move water out of the Banks Lake system. If generation capacity is limited at the TPP and more water is pumped to Banks Lake, Banks Lake would be kept at a higher level or full pool level. The amount of water that could be pumped to minimize spill is constrained by the maximum pool level of Banks Lake, irrigation demand, and the need to generate power through the PGs.

Other projects include the Odessa Subarea Special Study. The cumulative water quality impacts for this project on Banks Lake and Lake Roosevelt were discussed in the Odessa Subarea Special Study Draft EIS (Reclamation 2010a). When the minor impacts of this project are combined with those discussed in the Odessa Subarea Special Study, the impacts are not different than what was described in the draft EIS.

Lake Roosevelt

The JKPGP would continue to operate in a similar fashion as the No Action Alternative, but with more efficiency in the switch from pumping to generating. Spill at Grand Coulee would continue to occur without any significant change in volume spilled once Banks Lake reached full pool levels. As a result, TDG issues below Grand Coulee would not be affected by Alternative B. The Alternative would not change the current TDG load generated by spill events at Grand Coulee Dam.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative Impacts for Alternative C would be the same as Alternative B.

3.3 Threatened and Endangered Species

3.3.1 Affected Environment

Action Area

The area that could be potentially affected by the modernization of the JKPGP is defined by the areas affected hydrologically, as well as any direct effects of construction activities. Hydrologic effects would apply to fish species or terrestrial species associated with aquatic habitats. Construction effects would be limited to the immediate area surrounding the JKPGP.

ESA Listed Species in the Action Area

The following list of species and critical habitats protected by the Endangered Species Act (ESA) was developed by accessing listed species for Grant and Douglas counties, Washington, at http://www.fws.gov/wafwo/pdf/GrantCounty081111.pdf and http://www.fws.gov/wafwo/pdf/DouglasCounty081111.pdf respectively.

Bull trout (*Salvelinus confluentus*), Threatened
Bull trout Critical Habitat, Designated
Gray wolf (*Canis lupus*), Endangered/Delisted[1]
Columbia Basin Distinct Population Segment (DPS) of Pygmy rabbit (*Brachylagus idahoensis*), Endangered
Ute ladies'-tresses (*Spiranthes diluvialis*), Threatened Plant

Bull Trout

Status and Distribution – The U.S. Fish and Wildlife Service (USFWS) issued a final rule listing the Columbia River and Klamath River populations of bull trout (*Salvelinus confluentus*) as threatened species under the ESA on June 10, 1998 (63 FR 31647). This listing was reaffirmed in the most recent status review (USFWS 2008).

Bull trout are known to use the mainstem Columbia River for feeding, migration, and overwintering habitat (USFWS 2008). Bull trout are rare in Lake Roosevelt, but a few are known to be present (Spotts et al. 2000; Lake Roosevelt Forum 2011). In Banks Lake, bull trout were identified in the 1952 to 1954 catches (Nelson 1954; Spence 1965), as they were likely pumped from Lake Roosevelt with irrigation water as the lake filled. However, bull trout are not currently found in Banks Lake and never established populations due to lack of habitat (Reclamation 2001).

Life History and Ecology - Bull trout are a cold-water fish of relatively pristine stream and lake habitats. They have very specific habitat requirements including cold water temperatures, clean stream substrates for spawning and rearing, and complex habitats with riffles, deep pools, undercut banks and large woody debris, as well as connectivity between headwater spawning habitats and mainstem river or lake overwintering habitats (USFWS 2011a). Both resident and migratory life history forms are expressed by bull trout, with migratory fish spawning in cold, high-mountain tributaries in fall, and overwintering in mainstem river habitats and lakes. Juvenile migratory fish typically rear in tributaries for two years then outmigrate to lakes and mainstem rivers. Residents stay in spawning tributaries for their entire life cycle. Adults are primarily piscivores, with juveniles feeding on aquatic invertebrates (NatureServe 2011).

Reasons for Decline - The Columbia River DPS is threatened by habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, and past fisheries management practices such as the introduction of nonnative species (USFWS 2002a).

[1] Though Gray wolf was listed on the species lists by county, further research shows the populations in Grant and Douglas counties are part of the Northern Rocky Mountain DPS. http://ecos.fws.gov/speciesProfile/profile/countiesByState.action?entityId=9123&state=Washington, Accessed 10/01/11). This DPS was delisted on May 5, 2011 (76 FR 25590). Therefore, the Gray Wolf will not be considered in this analysis.

Designated Critical Habitat – The mainstem Columbia downstream of Chief Joseph Dam is included in critical habitat designated for bull trout on October 18, 2010 (75 FR 63898). Designated Critical Habitat did not include Lake Roosevelt, the Columbia River below Grand Coulee Dam to Chief Joseph Dam, nor tributaries entering these water bodies, nor Banks Lake.

Columbia Basin DPS of Pygmy Rabbit

Status and Distribution — The Columbia Basin pygmy rabbit likely occurred in portions of six Washington counties during the first half of the 1900s, including Douglas, Grant, Lincoln, Adams, Franklin, and Benton (USFWS 2007). Within Washington, the range of the pygmy rabbit (*Brachylagus idahoensis*) has been reduced to five isolated fragments of sagebrush-dominated habitat within Douglas County. On November 30, 2001, the USFWS announced an emergency listing of the Columbia Basin DPS of the pygmy rabbit species as endangered (66 FR 59734). The last wild population of Columbia Basin pygmy rabbit was considered extirpated in 2004 (USFWS 2007), but a significant proportion of suitable habitat in their historic range has not been surveyed (USFWS 2011b). Surveys conducted by the USFWS were unable to find any pygmy rabbits within the Banks Lake area (USFWS 2002b); however, the USFWS recommended additional surveys be conducted before any future activities are allowed that could adversely affect the sagebrush-steppe community. The only known Columbia Basin pygmy rabbits are held in a captive breeding program, with 92 individuals averaging about 65 percent Columbia Basin ancestry in the program as of April 15, 2011. The last purebred Columbia Basin pygmy rabbit in captivity died in August 2008 (USFWS 2011b).

Life History and Ecology — This is the smallest North American rabbit species and is one of only two rabbit species in North America that dig their own burrows. Pygmy rabbits are typically found in habitat types that include tall, dense stands of sagebrush (*Artemesia spp*.), upon which they are highly dependent for food and shelter throughout the year. They require areas that also include relatively deep, loose soil that allows burrowing (USFWS 2007).

Reasons for Decline — Large-scale loss and fragmentation of native shrub steppe habitats, primarily for agricultural development, was likely the primary factor in the long-term decline of the Columbia Basin pygmy rabbit. Once a population declines below a certain threshold, it is at risk of extirpation from a number of influences including chance environmental events, catastrophic habitat loss or resource failure, predation, disease, demographic limitations, loss of genetic diversity, and inbreeding. To varying degrees, all of these influences have impacted the Columbia Basin pygmy rabbit and, in combination, have led to the population's endangered status (USFWS 2007).

Ute Ladies'-Tresses

Status and Distribution — Ute ladies'-tresses (*Spiranthes diluvialis*), a perennial orchid, was federally listed as threatened in 1992 (57 FR 2048). This is a wetland and riparian species

found in springs, wet meadows, river meanders, and floodplains from elevations 1500 to 7000 feet (USFWS 1998). Populations of Ute ladies'-tresses orchids are known from three broad general areas of the interior western United States -- near the base of the eastern slope of the Rocky Mountains in southeastern Wyoming and adjacent Nebraska and north-central and central Colorado; in the upper Colorado River basin, particularly in the Uinta River basin; and in the Bonneville River basin along the Wasatch Front and westward in the eastern Great Basin, in north-central and western Utah, extreme eastern Nevada, and southeastern Idaho. The orchid also has been discovered in southwestern Montana and in the Okanogan area and along the Columbia River in north-central Washington (USFWS 2011c). The USFWS conducted Ute-ladies'-tresses surveys in late August 1999 during the peak blooming period when this species is most conspicuous. The USFWS found no Ute ladies-tresses and little potential habitat within the Banks Lake area (Reclamation 2004). Banks Lake habitats where Ute ladies-tresses may occur include wet meadows fed by freshwater springs; riparian forest, riparian shrub, and wet meadow mosaics; wet areas in open shrub or grassland; wetlands created in gravel or borrow pits; and habitats dominated by grasses, rushes, and sedges (Reclamation 2004).

Life History and Ecology — Ute ladies'-tresses inhabit full sun to partial shade in early to mid-seral communities subject to flooding or periodic inundation. Beaked spikerush (*Eleocharis rostellata*) appears to be the dominant species in habitat occupied by Ute ladies'-tresses and is a good indicator throughout its range.

Reasons for Decline — Urbanization, stream channelization, water diversions, watershed degradation, conversion of riparian and floodplain to agricultural uses, and decline of pollinators have all contributed to the decline of this species (Reclamation 2004). This species also appears to have a very low reproductive rate and does not compete well with aggressive species, such as reed canarygrass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*).

3.3.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The species list was considered for Grant and Douglas counties in Washington in order to fully consider all listed species that could possibly be found in the area affected by the proposed action alternatives. Status and distributions were analyzed to determine specifically where in the area of effect each species may be found, and what components of the proposed modernization may affect a species in that location. For instance, hydrology and water quality analyses were considered for aquatic species and direct effects on individuals or habitat from either construction activities or hydrological effects were considered for terrestrial species. In each case, the species were determined not to be found in locations where they would be subject to any effects from the project, so no further analysis was needed.

Alternative A - No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. Hydrology and water quality would remain the same as current conditions.

Bull trout

Bull trout are rare in Lake Roosevelt and the Columbia River downstream of Grand Coulee Dam, and Banks Lake is not considered part of their range. They would be expected to continue to rarely use the Columbia River and Lake Roosevelt as overwintering, feeding, and migrating habitat, and would not be expected in Banks Lake.

Columbia Basin DPS Pygmy Rabbit

No changes would be expected to habitats available to Columbia Basin pygmy rabbits, and these habitats would likely remain unoccupied by this species unless captive breeding and release programs become successful.

Ute's Ladies Tresses

This orchid would likely remain rare in the area with populations documented nearby in the Okonagan River basin and near the Columbia River.

Alternative B – JKPGP Modernization (Preferred Alternative)

Under Alternative B, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units. Hydrology and water quality effects of this alternative were analyzed, and the results of those parameters were used to determine potential to affect listed species in the area.

Bull Trout

Bull trout are rare in Lake Roosevelt and the Columbia River downstream of Grand Coulee Dam. The hydrology and water quality analyses conducted here determined that these habitats would not be affected by the proposed action. Bull trout were found in Banks Lake for just a few years in the 1950s, but none have been documented recently. Banks Lake does not have suitable habitat (cold, clear water or access to tributary spawning habitat) for bull trout to establish a population and Banks Lake is not considered a part of their range. The slight changes in hydrology due to the more efficient operation of JKPGP, compared to the No Action Alternative, are limited to Banks Lake and therefore would have no effect on bull trout.

Columbia Basin DPS Pygmy Rabbit

Pygmy rabbits inhabit shrub-steppe habitat dominated by sage species. These habitats are available in the vicinity of the action area, but they would not be affected by the project either

directly or hydrologically. Construction would take place within previously disturbed areas within the JKPGP and would not affect any potential habitat. The 2002 (USFWS 2002a) survey did not find any pygmy rabbits in the area surrounding Banks Lake, and the sage habitats would not be affected by any slight variations in day-to-day lake levels due to the proposed action.

Ute Ladies'-Tresses

The USFWS concluded that the Banks Lake shoreline is too steep and rocky, too dry, or inundated for too long during the growing season to provide suitable habitat for this species (Reclamation 2009). Therefore, the slight changes in day-to-day lake levels due to the proposed action would have no effect on Ute Ladies'-Tresses.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would overhaul and modernize the JKPGP pump and pump-generating units as described in Alternative B. The same modernization and overhaul work would be accomplished to return the twelve units to good working order. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid.

Hydrology and water quality changes in Banks Lake, Lake Roosevelt, and the Columbia River below Grand Coulee Dam are anticipated to be identical to Alternative B. Construction effects would also be similar to Alternative B with construction activities in previously developed sites. Therefore, effects to listed species from Alternative C would be identical to those identified for Alternative B.

3.3.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.3.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Under the ESA, the ~~"n~~o effect" determination is a high standard that means no affects whatsoever to listed species due to the proposed action. This analysis has determined this project would have no effect to listed species, so there would be no incremental impacts to any of these species when added to past, present, and reasonably foreseeable future actions.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.4 Fisheries

3.4.1 Affected Environment

Fisheries in the vicinity of JKPGP and Grand Coulee Dam areas include Lake Roosevelt, Banks Lake, and the Columbia River downstream of Grand Coulee Dam. However, the modernization of JKPGP would not affect the fish in Lake Roosevelt or the Columbia River fisheries directly through construction activities, or indirectly through hydrologic or water quality effects due to operational changes. These fisheries are described briefly and possible effects discussed. The hydrology analysis focused on possible effects to Banks Lake, showing minor changes in operations, so this fisheries analysis focuses more in depth on that fishery.

Banks Lake

Banks Lake supports a variety of warm-water and cold-water fish species. As an offstream reservoir, most of the fish species in Banks Lake were either pumped in from the Columbia River as it filled, existed previously in the smaller lakes inundated by Banks Lake, or were stocked by Washington Department of Fish and Wildlife (WDFW) for fisheries management. Early surveys (1950s) indicate kokanee salmon, burbot, bull trout, and possibly rainbow and eastern brook trout were pumped in with irrigation water from Lake Roosevelt (Duff 1973). Beyond occasional reports in the 1950s, bull trout never established in the reservoir, presumably due to lack of spawning habitat. Burbot were introduced through water deliveries and provided a fishery in the 1950s, decreased dramatically with no burbot being reported in the lake by the mid-1970s (Bonar et al. 2000), but reported in gill net surveys in 2008 (Polacek 2009).

Recent Banks Lake management supports a variety of warm-water and cold-water game fish in addition to non-game fish. As a warm-water game fishery, walleye, yellow perch, and crappie fishing is good, smallmouth bass up to four pounds are plentiful and largemouth bass are fairly abundant (WDFW 2011). Smallmouth bass were the most prevalent fish found in littoral zone (near shore) surveys by WDFW (2000), with young-of-year accounting for 23 percent of this species. Lake whitefish, carp, and sculpin, as well as young-of-year yellow perch, black crappie (*Pomoxis migromaculatus*), and walleye were also common in the littoral zone (WDFW 2000). Recent creel surveys indicate high angler satisfaction among anglers targeting smallmouth bass (96 percent) and low satisfaction among those targeting kokanee salmon (33 percent) (Polacek 2009). Lake whitefish are also abundant in Banks Lake, at times dominating recent fisheries surveys (Polacek 2009; WDFW 2011).

For cold-water fishery, Banks Lake is managed primarily for kokanee salmon and rainbow trout. Kokanee salmon are present through both natural spawning and hatchery/net-pen supplementation. Limited natural production of kokanee salmon is known to occur with spawning in a few areas along shorelines associated with inflows and upwellings in October

(Jackson 2011). However, hatchery-raised fish contribute the vast majority of the fishery (Polacek 2009). Populations are supplemented with approximately 1 million kokanee salmon annually (WDFW 2011). Several studies were conducted during the 1970s in Banks Lake to determine the effects of drawdown on the kokanee salmon and yellow perch spawning, egg incubation, and fry emergence (Stober et al. 1977). The studies concluded that low recruitment of kokanee salmon year classes exposed to drawdown was a factor in reducing their abundance. Since 1994, Banks Lake has predominately operated between elevation 1565 feet and 1570 feet, thus reducing these effects.

A rainbow trout fishery is supported through a cooperative rainbow trout rearing and stocking project between WDFW, an Electric City sportsman's group, and Coulee City Chamber of Commerce. Rainbow trout have been stocked every year since 1990 at an average of over 188,000 fish annually. This species is a prized gamefish in Banks Lake with a successful all-season boat and bank fishery. Lakeshore spawning of rainbow trout is not significant and annual hatchery fingerling plants must be made to sustain a viable fishery (Washington Department of Game 1986; Jackson 2011).

Polacek (2009) used various methods to evaluate limiting factors on hatchery kokanee salmon and rainbow trout recruitment to the fishery in Banks Lake. Water quality parameters and prey base, particularly zooplankton such as large *Daphnia* species, were found to be sufficient for kokanee salmon and trout. Predation, primarily by walleye and particularly following stocking events, was identified as the factor limiting survival of these species in Banks Lake. In addition, fall fingerling kokanee salmon releases were more successful than both spring fry and net pen yearling release strategies. A net over the outlet works of the lower dam is designed to protect fish from entrainment out of Banks Lake (WDFW 1985), but the mesh size allows small fish through. Entrainment was evaluated and found not to be extensive enough to limit kokanee salmon and trout production in Banks Lake (Polacek 2009).

Fisheries Habitat

Aquatic macrophytes, such as sedges, bulrushes, and cattails occur in shallow bays and shoreline areas protected from wind and wave action of Banks Lake. These provide refuge for prey species and sheltered spawning and nursery habitat for many fish species (Reclamation 2004). Reproductive success of fish that spawn near the shore in reservoirs is influenced by the time and duration of flooding and the type of substrate inundated (Aggus 1979). Water levels determine the amount of nursery area available by inundating or receding from vegetation. Survival of young fish of many species is increased when cover is abundant. Lack of habitat exposes young-of-year fish to increased predation.

Reclamation (2001) identified two key shallow unvegetated flats including (1) the shallow flats just south of the Million Dollar Mile North Boat Ramp, where adjacent lake bottom is used by smallmouth bass; and (2) the flats east of Barker Flat, where the adjacent lake bottom is used by largemouth bass, sunfish (*Centrarchidae spp.*), and black crappie. Other shallow

flats that are also potentially important for adult and juvenile habitat include the extensive flats that occur between the Million Dollar Mile North Boat Launch and the Million Dollar Mile South Boat Launch on the southwest side of Banks Lake.

Boulder, cobble, and gravel substrates, common along the steep western shoreline of Banks Lake, as well as other locations throughout the reservoir, provide spawning and rearing substrate for a number of fish species such as smallmouth bass, largemouth bass, and walleye. Additionally, the young of many of Banks Lake's fish species move offshore in summer after rearing for a number of weeks along the shallow vegetated littoral zone. Boulders and cobbles provide refugia from predators and substrate for benthic invertebrates (Reclamation 2004).

Deep, open water lake habitat is referred to as the limnetic zone. These habitats in Banks Lake are important to species such as lake whitefish, rainbow trout, and kokanee salmon. Zooplankton and benthic invertebrates are important food sources for Banks Lake fishery production in open water habitats. Banks Lake hydrology is characterized by the flow-through of irrigation water from north to south. The volume of the reservoir is about one-half of the volume discharged annually, resulting in an average retention time of about 6 months (WDFW 2000). The flow-through creates two distinct pools, with the north pool having colder water temperatures, reduced stratification and transparency, and higher plant nutrient levels than the south pool. Zooplankton biomass and composition are significantly different in the two pools, with the south pool having a higher biomass (Reclamation 2004). Under these conditions, Polacek (2009) found adequate zooplankton for trout and kokanee salmon. Benthic invertebrates such as snails, clams, and various insect larvae are a food source for forage fish and young life stages of many game fish. These invertebrates are often associated with aquatic vegetation and sediments as well as gravel, boulder, and cobble substrates.

Lake Roosevelt and Columbia River downstream of Grand Coulee Dam

Lake Roosevelt currently supports 20 species of game fish and 12 non-game species. Primary harvest fisheries include rainbow trout, kokanee salmon, and walleye. The lake is a popular fishery and also supports fishing tournaments for trout, walleye, and bass. Other game fish include smallmouth and largemouth bass, perch, whitefish species, other trout species, crappie, bullhead, sunfish, and catfish. Non-game species such as suckers, shiners, dace, and sculpin provide prey base to the fishery. Bull trout, listed as Threatened under the ESA, are rare but a few are present in Lake Roosevelt. White sturgeon, another rare fish in the lake, are protected from harvest by State regulations (Lake Roosevelt Forum 2011).

Wild kokanee salmon and rainbow trout fisheries are supplemented through hatchery and net-pen operations through a multi-agency effort, the Lake Roosevelt Fishery Enhancement Program (LRFEP). LRFEP is a cooperative effort between the Spokane Tribe of Indians, CCT, WDFW, Eastern Washington University, and the Lake Roosevelt Development Association (now known as the Lake Roosevelt Voluntary Net Pen Program) (Lake Roosevelt Forum 2011; Reclamation 2009). The purpose of the LRFEP is to develop a collaborative

multi-agency artificial production program as a mitigation measure to restore and enhance kokanee salmon and rainbow trout populations in Lake Roosevelt. Investigations suggest the hatchery and net pen programs have enhanced the Lake Roosevelt fishery while not negatively impacting native stocks within the lake (Lake Roosevelt Forum 2011).

Lake Rufus Woods is the reservoir immediately below Grand Coulee Dam and formed by Chief Joseph Dam. Lake Rufus Woods supports resident fisheries primarily for rainbow trout and kokanee salmon. The popular rainbow trout fishery in Lake Rufus Woods consists mainly of fish originating from the Spokane Tribal Hatchery and Trout Lodge. An adfluvial population of kokanee salmon maintains a sustainable wild population in the reservoir by successfully spawning in the Nespelem River, and is supplemented by hatchery stock released in Lake Roosevelt (Reclamation 2009).

3.4.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The physical habitat characteristics such as vegetated shorelines, shallow flats, steep rocky shorelines, and deep lake habitats that support the fisheries in Banks Lake can be affected by changes in water levels. Water quality parameters are also important in support of both warm-water and cold-water fisheries. Additionally, as a flow-through storage reservoir, changes in retention time can affect the zooplankton production that is the primary food source for kokanee salmon. This analysis examines the existing fisheries and the habitat conditions that support them, and then uses the hydrology and water quality analyses in this document to predict possible effects to fishery resources due to the proposed action as compared to the No Action Alternative.

Alternative A – No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. Existing conditions for fisheries would remain similar as the current conditions described in the Affected Environment.

Banks Lake

Under this alternative, the level of Banks Lake would be maintained within the current five-foot operating window with day-to-day and week-to-week fluctuations as described in the hydrology analyses, as well as infrequent drawdowns for maintenance. Flow-through retention time would remain the same. Water quality analyses indicated future conditions would not be expected to change from existing conditions.

Habitat, forage availability, and water quality conditions would be expected to continue to support the healthy, self-sustaining multi-species warm-water fishery. The character of the shoreline would be expected to remain similar. Protected areas providing emerging aquatic vegetation would continue to provide important juvenile rearing habitat and fuel production of invertebrates and zooplankton. The existing shallow, unvegetated flats would continue to add diversity to the habitats available. Steep rocky shorelines in some areas would continue to provide gravel/cobble/boulder spawning habitat for bass and other species, likely sustaining the good smallmouth bass fishery anglers currently enjoy.

The habitat conditions and current zooplankton production that support the kokanee salmon and rainbow trout fishery efforts would be expected to continue. As hatchery stocking and net-pen rearing efforts and successes are evaluated and the management of the cold-water species is refined (Polacek 2009), these fisheries would be expected to remain at similar levels or possibly increase, depending on fisheries management decisions.

Lake Roosevelt and Columbia River downstream of Grand Coulee Dam

Under the No Action Alternative, the habitat and management actions that support these fisheries would be expected to continue as under the current conditions. Lake Roosevelt would expect continued fisheries for kokanee salmon, rainbow trout, walleye, bass, and other species. Non-game fish present in Lake Roosevelt would continue to provide prey base, and rare, protected species such as bull trout and white sturgeon would continue to be rare components of the fisheries. The downstream Columbia River fisheries, including Lake Rufus Woods, would expect to continue as currently managed.

Alternative B – JKPGP Modernization (Preferred Alternative)

Banks Lake

Under Alternative B, hydrology analyses examined two scenarios, both of which would result in operations within the same 2.5- to 5-foot operating window. By completing the modernization, the JKPGP would operate more efficiently. As a result, there may be slightly greater day-to-day variation within the pool level. As mentioned previously, in a typical year like 2010, the maximum daily variation in lake elevation under the current operating schedule has resulted in less than 7.3 inches of drawdown and a maximum of 5.6 inches of refill. It has been estimated that the modernization and the more efficient power balancing may increase day-to-day pool level variation of up to six inches within the current operating level. Week-to-week variation would remain the same as the No Action Alternative. Wave heights, internal seiches, and wave action described in the Water Quality section typically are greater than the amount of variation and would likely obscure any changes due to the proposed action. Water quality analyses identified no substantial impacts from the proposed action.

Under this alternative, no quantifiable effects to the fisheries would be expected. Shallow bays and protected shoreline areas would continue to allow aquatic vegetation that supports juvenile rearing and food production, though these areas may be slightly rearranged if shoreline erosion increases, as has been suggested. The shallow flats would continue to provide diverse habitat for fisheries, and the steep, rocky shorelines that support smallmouth bass spawning would not be affected. No noticeable changes would occur in the open limnetic zone used by kokanee salmon, rainbow trout, lake whitefish, and other species.

The smallmouth bass fishery would be expected to continue, as well as the other warm-water species that are self-sustaining in the reservoir under the current habitat and food availability conditions. Fisheries management aimed at increasing the kokanee salmon and rainbow trout fisheries would not be affected by the minimal and likely unnoticeable, variations in water levels. Rate of flow through the reservoir (retention time) would not change, so the adequate prey base of zooplankton would likely continue to thrive. The limiting factor on the cold-water fisheries was identified as predation, primarily by walleye. Similar to the No Action alternative, fisheries management efforts would continue to evaluate and adapt stocking strategies to maximize successful recruitment of stocked trout and kokanee salmon, so this fishery would likely either remain the same or increase in the future.

Lake Roosevelt and Columbia River downstream of Grand Coulee Dam

Effects to these fisheries could be realized if the modernization of JKPGP resulted in any changes to hydrology or water quality in the lake or river. However, hydrology and water quality analyses indicated no changes would be expected to occur. As in the No Action Alternative, the habitat and management actions that support Lake Roosevelt fisheries would be expected to continue as under the current conditions, resulting in continued fisheries for kokanee salmon, rainbow trout, walleye, bass, and other species. Non-game fish present in Lake Roosevelt would continue to provide prey base, and rare, protected species such as bull trout and white sturgeon would continue to be rare components of the fisheries. The downstream Columbia River fisheries, including Lake Rufus Woods, would expect to continue as currently managed.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Hydrology and water quality analyses indicated no difference in Banks Lake, Lake Roosevelt, or the Columbia River downstream of Grand Coulee Dam between Alternative B and Alternative C. The effect of Alternative C on all fisheries resources would be the same as Alternative B.

3.4.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.4.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Several projects are planned or ongoing in the area related to overhaul or modification to powerplant facilities (see Section 1.6). Any of these projects could result in minor or temporary changes in operations that could affect water quality or hydrology of the Banks Lake, Lake Roosevelt, or the Columbia River below Grand Coulee Dam. The slightly increased day-to-day variations in Banks Lake levels associated with this project could add to the cumulative effect of each of these projects if the timing and direction were exactly coincidental to further increase or decrease the lake levels in the same direction as the variation due to this project. However, the chance of lake levels coincidentally being altered in the same direction at the same time and with enough magnitude to produce a quantifiable biological effect due to cumulative effects is negligible.

The Odessa Subarea Special Study Draft EIS evaluates alternatives to deliver surface water from the CBP to irrigated lands using Banks Lake facilities. Some Odessa study alternatives could have effects through depletions of Lake Roosevelt/Columbia River and through increased volume of water flowing through Banks Lake changing retention times. These effects are analyzed in the Draft EIS. Hydrologic and water quality analyses shows no cumulative effects for those resources. Furthermore, the modernization of JKPGP does not result in any depletion or retention time changes so would not have cumulative effects associated with the Odessa Subarea Special Study. The effects of the JKPGP when compared to the Odessa Subarea Special Study Draft EIS are very minor.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.5 Wildlife

3.5.1 Affected Environment

The varied habitats found in the action area support a multitude of wildlife. The habitats surrounding Lake Roosevelt and the Columbia River below Grand Coulee would not be affected long-term because hydrology analyses indicated no change in operations to these waters would occur due to the proposed action. Analysis of these habitats is limited to a brief, general description and analysis of any short-term disturbances that may occur due to construction activities. Banks Lake habitats are discussed more in-depth and in the context of possible changes in operations of that lake to include slightly increased day-to-day variation in water levels within the normal operations window.

Banks Lake

WDFW manages 44,700 Reclamation acres and 41 WDFW acres on and surrounding Banks Lake as a wildlife management area. Most of the shoreline is ringed with basalt cliffs and talus slopes, the dry uplands have shallow soils and rocky outcrops with shrub-steppe habitat. Willows and Russian olives grow on the fringes of some cattail and bulrush wetland areas. There are about 23 islands in the reservoir from one to several acres in size, including basalt and granite outcroppings, shrub-steppe, and wetlands. Steamboat Rock, in the northern part of the lake, is the largest of several peninsulas and is designated a Research Natural Area (Reclamation 2001).

Birds

Surveys conducted for development of a Resource Management Plan (RMP) (Reclamation 2001) noted over 150 species of birds in the management area, with breeding evidence for 55 species. Raptors (birds of prey), waterfowl, colonial nesting birds, shorebirds, upland birds, and neotropical migrants all use the habitats near or supported by Banks Lake.

Raptors such as bald eagle (*Haliaeetus leucocephalus*), golden eagle (a*quila chrysaetos*), prairie falcon (*Falco mexicanus*), peregrine falcon (*Falco peregrinus*), Swainson's hawk (*Buteo swainsoni*), and loggerhead shrike (*Lanius ludovicianus*) use the area. Habitats surrounding Banks Lake provide nesting opportunities, with several areas of known nesting occurring (WDFW 2008). Shrub-steppe habitats support upland species that provide food sources for these birds.

Banks Lake provides habitat for waterfowl. Several species use bays and inlets of Banks Lake for breeding, including Canada goose (*Branta canadensis*), green-winged teal (*Anas crecca*), mallard (*Anas platyrhynchos*), blue-winged teal (*Anas discors*), northern shoveler (*Anas clypeata*), cinnamon teal (*Anas cyanoptera*), gadwall (*Anas strepera*), redhead (*Aythya americana*), lesser scaup(*Aythya affinis*), and ruddy duck (*Oxyura jamaicensis*). During the beginning of fall migration, several thousand mallards and northern pin tails (*Anas acuta*) and several hundred Canada geese used the shoreline at the southeast end of Banks Lake. Waterfowl use was heaviest and contained the highest diversity of species throughout the field season in the various wetlands, ponds, and lakes south of Dry Falls Dam. Aerial winter counts have been conducted at Banks Lake by USFWS and WDFW for many years. Since 1990, the average winter count was 4,600 ducks, geese, and swans. The highest count was nearly 20,000 birds and the lowest count was zero birds when the reservoir was 100 percent ice-covered (Reclamation 2001).

Three islands at the southern end of Banks Lake have been used for nesting by colonial-nesting birds for several years. The southernmost island, Gull Island, is located about ¼-mile north of Dry Falls Dam. Great blue heron and black-crowned night-herons were observed nesting in small trees and shrubs on the island, with juveniles also present. Approximately 1,500 California gulls (*Larus californicus*), adults and chicks, were also observed. The other

two islands are about two miles north of the dam and separated by about fifty yards of open water. Numbers of colonial nesters present on these islands included approximately 1,000 California gulls, 3,000 ring-billed gulls (*Larus delawarensis*), and 50 Caspian terns (*Hydroprogne caspia*) (Reclamation 2001).

Shorebirds were surveyed for the RMP effort as well (Reclamation 2001). Fall migrating shorebirds were surveyed in fairly low numbers, but most of the expected species, such as plovers, killdeer (*Charadrius vociferous*), spotted sandpiper (*Actitismacularia*), gulls, snipe, common grebes, and yellowlegs were observed. The majority of these were found at the wetlands and lake fringes below Dry Falls Dam. In other portions of the management area, shorebird use consisted almost exclusively of killdeer and spotted sandpipers that use unvegetated shallow flats. The low numbers and diversity of shorebirds in the majority of the management area is probably due to limited mud, silt, or sand substrates and relatively constant water levels.

Neotropical migratory birds are species which breed in the United States and Canada and then migrate south to Mexico, Central or South America, or the Caribbean for the winter not including waterfowl, shorebirds, herons, or egrets. Many of these species have experienced large population declines due to habitat destruction of breeding grounds, wintering areas, and along migration routes. Sixty-six species of these birds have been documented in the area of Banks Lake (Reclamation 2001).

Shrub-steppe priority habitats and rural natural open space support upland bird species such as chukar (*Alectoris chukar*), pheasants, quail, and the greater sage grouse (*Centrocercus urophasianus*).

Mammals

Forty-seven mammals were identified in surveys for the RMP (Reclamation 2001). Mule deer (*Odocoileus hemionus*) regularly use the area surrounding the lake. Black bear (*Ursus americanus*) and cougar (*Felis concolor*) have been sighted, but were probably transients. Coyotes (*Canus latrans*) appeared to be common and were either sighted, heard, or observed by sign throughout the management area. Badgers (*Taxidea taxies*) are fairly secretive and were not observed directly but their diggings and tracks were found. The shrub-steppe habitat used by these species may also provide habitat opportunity for the threatened Columbia Basin DPS of pygmy rabbit, though none were found in surveys (Reclamation 2001). Other species documented to use these shrub-steppe habitats specifically include bobcat (*Lynx rufus*); small mammals such as sagebrush vole (*Lemmiscus curtatus*), northern pocket gopher (*Thomomys talpoides*), and deer mouse (*Peromyscus maniculatus*); and other mammals such as mule deer (*Odocoileus hemionus*), Nuttall's cottontail (*Sylvilagus nuttallii*), and porcupine (*Erethizon dorsatum*).

Muskrats (*Ondatra zibethicus*) and mink (*Mustela vison*) were commonly observed on the lake in wetland habitats associated with aquatic vegetation.

Amphibians and Reptiles

Eleven species of amphibians and reptiles were documented within the management area, with seven of those found during 1998 surveys. The racer (*Coluber constrictor*) was the most common reptile encountered, with western rattlesnake (*Crotalus viridis*) the next most common species. The only previously documented record of the Columbia spotted frog (*Rana luteiventris*) is a historic sighting from 1937. The Columbia spotted frog, a Federal "Species of Concern" and State candidate species, was collected in the 1998 surveys east of Steamboat Rock at a stream which flows into Devil's Punch Bowl features of Banks Lake (Reclamation 2001).

Lake Roosevelt and Columbia River below Grand Coulee Dam

Lake Roosevelt is surrounded by multiple vegetation communities including mixed conifer forests, shrub-steppe, riparian wetlands, open water, and mixed agriculture and pasture grasslands. These communities provide abundant and diverse habitats for wildlife species. Vegetation gradually transitions from conifer forests in the north to semiarid grassland and sagebrush communities in the south, near Grand Coulee Dam. Riparian vegetation, including cottonwood trees and willow is present along the shoreline. Due to the annual large and rapid fluctuations of water levels within the reservoir, there are limited aquatic bed and wetland communities in the littoral zone. For an approximately three-month period, the lake drawdown separates the riparian habitats from the reservoir by an expanse of barren land. Aquatic plants, such as bulrushes, sedges, reeds, and cattail, that provide food and cover for waterfowl, mammals, and amphibians, are supported in the littoral zone. These habitats support abundant wildlife, including an estimated 75 species of mammals, 200 species of birds, 10 species of amphibians, and 15 species of reptiles (Reclamation 2009). Systematic surveys of wildlife have not been conducted in the area, but Priority Habitats and Species data (WDFW 2008) note the presence of elk, deer, and bird species. Some areas along the shoreline are identified by WDFW as providing roosting and breeding habitats, including several communal bald eagle roosts found in proximity to the lake. WDFW has identified areas that support high concentrations of waterfowl in Lake Roosevelt including large numbers of migrating or wintering ducks and geese. In general however, the rapid annual fluctuation of water levels, due to reservoir operations, limits the establishment of shoreline vegetation and the amount of suitable habitat for nesting waterfowl (Reclamation 2009).

Below Grand Coulee Dam, along Rufus Woods Lake, the Columbia River flows through arid habitats including disturbed shrub-steppe and irrigated agricultural fields. This is generally the situation all the way downstream through the action area. Along Rufus Woods Lake, priority species documented by WDFW include several bald eagle communal roosts, nesting records of prairie falcon, Swainson's hawk, loggerhead shrike, and longbilled curlew (WDFW

2008). Waterfowl concentrations occupy the area and woodhouse toad (*Bufo woodhousii*) and sagebrush lizard (*Sceloporus graciosus*) have been documented in the area, both of which are priority species.

3.5.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

Area wildlife and habitat could be affected either directly through construction activities associated with the project or indirectly through changes in operation resulting from more efficient pumping capability after upgrades and modifications. Habitats and associated wildlife species dependent upon Banks Lake operations were considered in the context of possible operational changes, specifically a slight increase in day-to-day changes in lake levels, as outlined in the hydrology analyses. Wildlife in the areas of Lake Roosevelt and the Columbia River below Grand Coulee Dam would not be affected by any operational changes, so analysis was limited to direct effects from noise and disturbance due to the construction activities associated with the proposed action.

Alternative A - No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. No construction activities associated with this project would occur.

Banks Lake

Under this alternative, the level of Banks Lake would be maintained within the current 5-foot operating window with day-to-day and week-to-week fluctuations as described in the hydrology analyses, as well as infrequent drawdowns for maintenance. Assuming ongoing wildlife management as currently practiced, these operations would continue to support the diversity of habitats and consequent wildlife species as described in the affected environment. Cliffs and talus slopes would continue to support raptor nesting opportunities. Shrub-steppe habitats would not be affected and continue to provide homes for a multitude of upland bird, raptor, neotropical migratory bird, mammal, and reptile species. The wetland and riparian areas around the reservoir would continue to produce nesting waterfowl as well as support large migratory flocks of waterfowl and neotropical migrants, mammals, reptiles, and amphibians. Shallow, exposed flats and areas of aquatic vegetation would continue to be used by shorebirds as well as mammals such as muskrat and mink. Islands in Banks Lake would likely continue to house large colonies of colonial nesting birds such as gulls and terns.

Lake Roosevelt and Columbia River below Grand Coulee Dam

Species of wildlife that are sensitive to noise disturbance and found in the shrub-steppe habitat as well as lake habitats common in the immediate area of Grand Coulee Dam and JKPGP would continue to encounter occasional, minor disturbance from normal operations and maintenance activities. These include birds such as bald eagles, peregrine falcons, waterfowl, and migratory birds; mammals such as deer and elk; and reptiles and amphibians that use the area.

Alternative B – JKPGP Modernization (Preferred Alternative)

Under Alternative B, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units.

Banks Lake

Under Alternative B, hydrology analyses examined two scenarios, both of which would result in operations within the same 2.5- to 5-foot operating window. By completing the overhaul and modernization, the JKPGP would operate more efficiently. As a result, there may be slightly greater day-to-day variation within the pool level. As mentioned previously, in a typical year like 2010, the maximum daily variation in lake elevation under the current operating schedule has resulted in less than 7.3 inches of drawdown and a maximum of 5.6 inches of refill. It has been estimated that the modernization and the more efficient power balancing may increase day-to-day pool level variation of up to six inches within the current operating level. Week-to-week variation would remain the same as the No Action Alternative. Wave heights, internal seiches, and wave action described in the Water Quality section (Section 3.2) typically are greater than the amount of variation and would likely obscure any changes due to the proposed action.

Cliffs and talus slopes should not be affected by the increased day-to-day fluctuations and would continue to support raptor nesting opportunities. Shrub-steppe habitats would likewise not be any different than under the No Action Alternative and would continue to support a multitude of upland bird, raptor, neotropical migratory bird, mammal, and reptile species. The wetland and riparian areas and shallow, exposed flats would be the habitats most likely to be affected by changes in day-to-day variation in lake levels and possible increased shoreline erosion. As stated previously, however, these changes are well within the same operational levels as current operations and would be obscured within the natural processes of wave action and seiches. No quantifiable biological effects would be expected to the species dependent on these habitats. Wetlands and protected bays around the reservoir would continue to produce nesting waterfowl as well as support large migratory flocks of waterfowl and neotropical migrants, mammals, reptiles, and amphibians. Shallow, exposed flats and areas of aquatic vegetation would continue to be used by shorebirds as well as mammals such as muskrat and mink. Islands in Banks Lake would also not be affected by the proposed action and would likely continue to house large colonies of colonial nesting birds such as gulls and terns.

Lake Roosevelt and Columbia River below Grand Coulee Dam

Construction activities associated with Alternative B would take place over a period of 10 to 15 years as the various steps are implemented. Construction staging would be at a previously disturbed location now used for equipment storage. There may be an increase in activity at the site, but it is in a location subject to frequent activity and probably avoided by noise/disturbance sensitive species currently.

Species of wildlife that are sensitive to noise disturbance and found in the shrub-steppe habitat as well as lake habitats common in the immediate area of Grand Coulee Dam and JKPGP would continue to be affected by noise and disturbance. This localized area of activity would likely be avoided for nesting activities and by species very sensitive to disturbance. Wildlife species such as bald eagles, peregrine falcons, waterfowl, and migratory birds; mammals such as deer and elk; and reptiles and amphibians that use the area would likely continue to use it in a very similar fashion as they would under the No Action alternative.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would overhaul and modernize the JKPGP pump and pump-generating units as described in Alternative B. The same modernization and overhaul work would be accomplished to return the twelve units to good working order. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid.

Hydrology of Banks Lake and operations and construction activities in the area of Lake Roosevelt and the Columbia River downstream of Grand Coulee Dam would be the same as Alternative B. Therefore, effects to wildlife are anticipated to be identical to those described in Alternative B.

3.5.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.5.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Several projects are planned or ongoing in the area related to overhaul or modification to powerplant facilities (see Section 1.6). Any of these projects could result in minor or temporary changes in operations that could affect water quality or hydrology of the Banks Lake, Lake Roosevelt, or the Columbia River below Grand Coulee Dam. The slightly increased day-to-day variations in Banks Lake levels associated with this proposed action could add to the cumulative effect of each of these projects if the timing and direction were

exactly coincidental to further increase or decrease the lake levels in the same direction as the variation due to this project. However, the chance of lake levels coincidentally being altered in the same direction at the same time and with enough magnitude to produce a quantifiable biological effect due to cumulative effects is negligible. Effects of any actions resulting in substantial changes in lake levels are being considered in separate documents.

Construction activities associated with each of these actions could also result in cumulative effects to wildlife species sensitive to noise and disturbance. However, this project's construction activities would take place in an area that is likely already avoided by sensitive species, so incremental increases in activity due to other projects would not result in significant impacts to these species.

The Odessa Subarea Special Study Draft EIS evaluates alternatives to deliver surface water from the CBP to irrigated lands using Banks Lake facilities. Some Odessa study alternatives could have effects through depletions of Lake Roosevelt/Columbia River and through increased volume of water flowing through Banks Lake changing retention times. These effects are analyzed in the Draft EIS. Hydrologic and water quality analyses show no cumulative effects for those resources. Furthermore, the modernization of JKPGP does not result in any depletion or retention time changes so would not have cumulative effects associated with the Odessa Subarea Special Study. The minor effect of daily variation in lake levels would not be increased or affected by the proposed action in the Odessa Subarea Special Study Draft EIS.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.6 Hazardous or Toxic Wastes

3.6.1 Affected Environment

The Grand Coulee Power Office (GCPO) is identified as a Medium Quantity Generator of Hazardous/Dangerous Wastes according to Ecology Dangerous Waste Regulations. These wastes are generated as part of the facility's operation and maintenance (O&M) activities and include waste paints, solvents, used oils, lead, and asbestos (Ecology 2009b). Lead and asbestos wastes are generated and accumulated as part of O&M activities on the pump and pump-generating units.

As identified through sampling and on-going efforts to dispose of PCB electrical equipment, the JKPGP has a non-PCB operational status. Sample analysis for oils in the KP10B transformer revealed a concentration of 1 part per million (ppm) (Alternative Technologies, Inc. Test results, March 25, 2009). Ecology identifies transformer cooling and insulating fluids containing PCB concentrations of 2 ppm or greater as a State regulated dangerous waste (WA DOE Dangerous Waste Regulations). The JKPGP has six pumps (P1-P6) and six

pump-generators (PG7-PG12). All of these units were previously equipped with asbestos-containing brake pads. Pump-generation units PG9-PG12 also had thermal system insulation. All known asbestos containing material and asbestos containing building materials have been removed. Clearance air samples showed asbestos concentrations less than 0.01 fiber per cubic centimeter and all surface area bulk samples of the remaining oily, dusty debris were less than 1 percent by weight. Asbestos fibers may remain in some areas of the pump and pump-generator units.

White wrapped wiring located in the interior of CP2A2F Reo Stat contains 70 percent Chrysotile asbestos. Black wrapped wiring also contains 70 percent Crysotile asbestos and is located in pump units P1 through P6 including the pump unit control boards, air housing terminal boards, and in the turbine pit wiring. Pump units P1, P3, and P5 are primarily wired with the black wrapped wire; whereas pump units P2, P4, and P6 have been electrically upgraded and have only small quantities of this wiring remaining. Additionally, the station service gallery, panel board UP1A 6900V swithchgear, panel board DP2A 460V motor and heat/vent switchgear, and the panel board DP6A 460V motor and heat/vent switchgear all contain black wrapped wire. The EPA has recently expressed concerns regarding the potential for PCBs to be included in paints or caulks manufactured prior to 1979. As a result of these concerns, all painted surfaces were sampled for both PCBs and total heavy metals, including lead. Painted surfaces, including the pump and pump-generating units, floors, railings and cabinets have concentrations of lead as high as 15 percent. All paint chip samples were non-detect for PCBs (PBS Engineering and Environmental, Limited Hazardous Materials Sampling Report, August, 2011).

Personal air monitoring results during similar job activities have not revealed any airborne concentrations of asbestos within an order of magnitude of the Occupational Safety and Health Administration (OSHA) Permissible Exposure Level (>0.1 fiber per cubic centimeter of air as an 8-hour time-weighted average). Personal air sampling for airborne concentrations of lead contaminated dust also revealed concentrations well below the Permissible Exposure Level for lead (0.050 milligrams per cubic meter). Health hazards associated with these contaminated dusts are perceived to be minimal (Andrews 2009a).

All workers receive annual lead awareness training and asbestos training/certification commensurate with their assigned duties. The Grand Coulee Powerplant Safety Office has established work planning steps to ensure that O&M activities are performed to ensure worker health and safety. Work supervisors are instructed to adhere to the Reclamation Safety and Health Standard Section 4 to ensure that all known and foreseeable hazards are identified and mitigated prior to beginning work. Past O&M work activities have been preceded by a thorough cleaning of accessible surfaces (Andrews 2009b).

According to the Grand Coulee Spill Prevention Control and Countermeasures plan, the JKPGP facility has the following oil capacity (Table 3-6):

Table 3-6. Oil Storage Capacity (Reclamation 2005).

System	Total Volume (Gallons)
Pump Bearings (P-1 and P-2)	1,800 gal.
Pump Bearings (P-3 through P-6)	3,300 gal.
Pump/Generator Bearings (P/G-7 and P/G-8)	1,700 gal.
Pump/Generator Bearings P/G-9 through P/G-12	2,960 gal.
Pump/Generator Governors (P/G-7 and P/G-8)	3,200 gal.
Pump/Generator Governors (P/G-9 through P/G-12)	3,280 gal.
Lubricating Oil	5,000 gal.

Colville Tribal Law and Order Code, Chapter 4-13 Solid Waste regulates solid and hazardous waste storage and disposal on CCT lands. According to Grand Coulee Solid and Hazardous Waste program management, no solid or hazardous wastes are authorized for disposal on Tribal lands.

3.6.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The purpose of this discussion is to determine if implementation of a proposed alternative would significantly impact the JKPGP and surrounding environment. This is a qualitative analysis that identifies the current affected environment and perceived variables subsequent to the implementation of the proposed action. The indicator variable used in this analysis is the potential for the generation, transportation, and disposal of additional hazardous wastes as part of the overhaul of the JKPGP and the potential impact to human health and the environment resulting from the management of these wastes.

Alternative A - No Action

Reclamation would continue operating the JKPGP pumps and PGs with no system improvements. Current maintenance and production schedules would be adjusted as necessary to meet operational parameters for power generation and provision of irrigation water. Hazardous materials and waste would continue to be managed as they are at this present time. Used oils, lead and asbestos contaminated dusts, and potential lead-based paints would continue to be analyzed for content and removed and disposed of as determined by the O&M schedule.

Alternative B – JKPGP Modernization (Preferred Alternative)

As previously discussed, GCPO is regulated as a Medium Quantity Generator of hazardous/dangerous waste according to Ecology regulation. The internal parts of the pumps and pump-generating units within the JKPGP may have dust particles potentially containing lead and asbestos. Potential exists for the exposure of GCPO employees and contractor employees working in the JKPGP during the dismantling and refurbishing of these units. Potential routes of exposure are inhalation and ingestion of contaminated dusts. It has been observed at other operating units at Grand Coulee, particularly the generators in the TPP that dust particles within the units are encased with a thin film of oil. Air sampling within these units revealed non-detect levels of these contaminants (Andrews 2009b).

It is anticipated that regulated hazardous wastes would be generated as part of the proposed action in quantities greater than during general O&M activities. Dismantling and cleaning of pump-generating unit components would generate additional quantities of used oils, solvents, and detergent-based wastes which may contain lead and asbestos contaminated dust. Refurbishing of metal parts may require the removal of paint and the repainting of those parts utilizing non-lead based paints. These activities would lead to the generation of sandblast media containing lead based paint chips, waste paints, and solvents. An elevated amount of waste generation may increase potential workers exposure through inhalation, ingestion, and dermal absorption. Removal of some or all of the asbestos wrapped wire is anticipated and may increase potential worker exposure through inhalation. Requirements for worker safety as established in the Reclamation Safety and Health Standards and OSHA 1926.1101 Safety and Health Regulations for Construction, Asbestos will be followed.

As a result of increased waste generation, it is anticipated that there would be a small increase in the transportation of solid and hazardous wastes for recycling or disposal. As per the Federal Resource Conservation and Recovery Act and State of Washington Dangerous Waste Regulations, hazardous and dangerous waste management is tightly regulated and requires strict controls for its generation, transportation, and disposal or recycling. This process is commonly referred to as cradle-to-grave management and requires, among other things, contingency and emergency response planning throughout all phases of the management process. No appreciable impact is anticipated relative to available hazardous/dangerous waste disposal capacity resulting from the proposed action.

Contracted work performed at the JKPGP follows criteria provided in the contract specifications which ensure worker health and safety and the proper treatment, temporary storage, and disposal of hazardous/dangerous wastes and used oils. Contract specifications require either a Negative Initial Exposure Assessment or the implementation of appropriate engineering controls for any contracted work area where the potential exists for airborne concentrations of lead or asbestos. OSHA Permissible Exposure Levels for worker exposure to hazardous substances are not to be exceeded.

It is established in Reclamation Manual Policy (ENV P01) and Directives and Standards (ENV 02-02) that Reclamation must ensure that hazardous/dangerous wastes generated on Reclamation property through its own or contracted activities are properly treated, stored, and disposed of in accordance with applicable environmental rules, regulations and standards, and that hazardous/dangerous wastes are recycled whenever possible.

As discussed above, established worker safety standards and contract specifications adequately address the potential worker exposure to generated hazardous/dangerous wastes. Also, waste management standard operation procedures, contract specifications, and Federal, State, and local environmental regulations ensure that a minimal potential exists for the release of hazardous/dangerous wastes to the environment. It is anticipated that the proposed action represents a minimally elevated potential for impact to human health or the environment.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Alternative C includes the actions described in Alternative B above. Additional activities planned under Alternative C include decoupling of the JKPGP units from the left powerhouse for direct connection to the transmission grid. As discussed in Alternative B above, some increase in hazardous/dangerous waste and used oil generation is anticipated; however, minimal impacts to human health or the environment are anticipated as a result of these activities.

3.6.3 Mitigation

Alternative A - No Action

No mitigation is required.

Alternative B - JKPGP Modernization (Preferred Alternative)

Established worker safety standards and contract specifications adequately address the potential worker exposure to generated hazardous/dangerous wastes. Adherence to waste management standard operation procedures, contract specifications, and Federal, State, and local environmental regulations ensures that a minimum potential exists for the release of hazardous/dangerous wastes to the environment. It is anticipated that the proposed action represents a minimally elevated potential for impact to human health or the environment. Apparent or alleged impacts to human health or the environment are currently being adequately addressed through administrative and engineering controls. The slightly elevated potential for impact to human health or the environment does not require additional controls or mitigation.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Mitigation for Alternative C would be the same as Alternative B.

3.6.4 Cumulative Impacts

The GCPO has numerous O&M activities throughout the facility that generate similar types of wastes anticipated to be generated as part of the JKPGP modernization. These projects include the following:

- Replacement of the 500-kV cables with overhead lines
- Modification of fixed-wheel gate chambers to accommodate blasting and painting
- Rehabilitation of powerplant cranes
- TPP exciter and governor replacement
- Transformer replacements
- Elevator rehabilitations
- TPP overhaul
- JKPGP discharge tube recoating project
- JKPGP flow/coaster gate refurbishment

It is anticipated that all these activities would likely generate hazardous wastes including used oils, paint waste and solvents, asbestos and lead contaminated dusts, and sandblast material containing lead-based paint chips.

Because of the onsite generation of hazardous wastes from these (and other) O&M activities, the GCPO has an established hazardous/dangerous waste program that ensures appropriate and effective waste management from cradle-to-grave. This program is subject to regularly scheduled audits by GCPO and independent Reclamation personnel, and to environmental inspection by Federal and State regulatory authorities. Such inspection and review of the GCPO waste management program ensures minimal potential adverse impact to human health and the environment.

3.7 Visual Quality

3.7.1 Affected Environment

The Grand Coulee Dam area includes two viewsheds: the upper viewshed of Lake Roosevelt and the town of Grand Coulee and the main viewshed that includes the face of the dam, the TPP, and the spillway. The JKPGP is located in the upper viewshed.

Upper Viewshed

This area includes the lower end of Lake Roosevelt, portions of SR 155 and SR 174, and residential lands in the East Heights area of the Town of Grand Coulee. Primary components are the top of the dam and arch spillway structures, Reclamation facilities and parking areas, residential areas within the Town of Grand Coulee, Crescent Bay Lake, Lake Roosevelt, and surrounding granite outcrops and hillsides.

Visitors traveling along this route are expected to be anticipating and looking for the dam. The overall character of views as people approach Grand Coulee Dam is developed land in the foreground with background views of non-forested hills and granite outcrops.

Views for travelers on SR 155 include the commercial zone of the Town of Grand Coulee, a roadside park, and a visitor's parking area. Partial views of Lake Roosevelt lead to views of the top of Grand Coulee Dam and Reclamation facilities. Passing the top of the dam provides only a glimpse of a view and rates low on vividness (i.e., is generally unremarkable). A circular convex curve transitions drivers to the main viewshed that includes views of face of the dam and spillway.

Views for East Heights residents are primarily water views of Lake Roosevelt and landform views of hillsides above. Human built features include the top of the dam, a log boom, and Reclamation facilities. These views are considered scenic due to the combination of water, natural landforms, views of the top of the dam, and background views of distant topography below the dam.

Views for recreationists at Lake Roosevelt are at or near lake level and include open water and adjacent upland landforms. The top of the dam is conspicuous at the extreme lower end of the lake.

3.7.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The proposed action was evaluated to determine the probability of the project to obscure the view of the backside of Grand Coulee Dam and Lake Roosevelt, or to dominate the viewshed.

Alternative A - No Action

Under the No Action Alternative, Reclamation would continue its existing scheduled maintenance for the JKPGP. There would be no decoupling of the pump units from the left powerhouse and the new lines and additional transformer would not be required. The existing scheduled maintenance would mostly be conducted inside the JKPGP and would have no significant impacts to the viewshed.

Alternative B – JKPGP Modernization (Preferred Alternative)

Under Alternative B, the JKPGP would not be decoupled from the left powerhouse. The remaining aspects of the modernization project would take place in or at the JKPGP. The replacement transformer will either be located on the roof of the pump plant or in the same place as the existing transformers. The switch gear will either be placed on the roof next to the transformers or on the take off structure. Photograph 3-1 shows the location of the existing transformers and where the additional equipment will be placed.

Photograph 3-1. Location of existing transformers.

The replacement transformers and equipment would not be visible from the road and would not detract from views of the backside of Grand Coulee Dam and Lake Roosevelt. The equipment would be visible from the reservoir but would not dominate the viewshed or be distinguishable from the other industrial equipment at the JKPGP. No significant impacts to visual resources are anticipated from Alternative B.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, the JKPGP would be modernized as described in Alternative B with the exception that the JKPGP would be decoupled from the left powerhouse. There would be no other changes to the viewshed except for the addition of a transformer to the lake side of the JKPGP as described in Alternative B and no significant impacts were identified.

3.7.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.7.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Many of the other projects to be undertaken at the Grand Coulee Dam over the foreseeable future involve other kinds of large maintenance projects. Those projects are going to occur on the downstream from the dam and are in a separate viewshed than JKPGP. When the potential effects are considered from these projects with the impacts described above, no significant cumulative effects were identified.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would the same as Alternative B.

3.8 Power

3.8.1 Affected Environment

Due to the condition of the equipment at JKPGP, the ability to provide additional power system balancing reserves is limited. Balancing reserves can be defined as generation flexibility; either the ability within the hour to increase generation or decrease pump loads (inc) or the ability to decrease generation or increase pump loads (dec), in order to balance generation with loads on the system and maintain a reliable grid. With no pumps or PGs operating and all units available for service, JKPGP has the ability to provide 614 MW of dec reserves by starting all pumps and PGs in pumping mode (creating load); or the ability to provide 314 MW of inc reserves by starting the PGs in generate mode (providing generation). An operation point that provides the most within hour flexibility for JKPGP may have several units pumping, and would allow a modernized JKPGP to provide both dec (starting additional pumps) and inc (stopping pumps and starting PGs in generate mode) capability.

Historically, JKPGP is generally operated to meet irrigation demand in the most cost-effective manner possible, while observing physical and regulatory operating constraints. This operational goal typically results in maximizing pumping during light load hours (LLH) or low-cost energy periods, and minimizing pumping, and even occasional periods of generating, during heavy load hours (HLH) or high-cost energy periods. Current equipment condition, while adequate to reliably meet irrigation demands, limits the flexibility of JKPGP and severely limits its ability to provide balancing reserves.

3.8.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The impact indicators will be if the action significantly affects the ability to provide power system balancing reserves or power generation.

Alternative A – No Action

Under the No Action Alternative, Reclamation would continue its existing scheduled maintenance for the JKPGP. There would be no decoupling of the pump units from the left powerhouse. The existing scheduled maintenance would mostly be conducted inside the JKPGP and there would be no significant impacts to power production.

Alternative B – JKPGP Modernization (Preferred Alternative)

The Proposed Modernization of the JKPGP would make the facility more reliable for its intended purposes. In order to maximize a modernized JKPGP's ability to provide balancing reserves, a neutral operating position across the day may provide increased and more predictable balancing reserve capability from JKPGP. One operational scenario would be to operate JKPGP at the neutral point, starting or stopping units based on balancing reserve demand created by the variability of other generation or loads in the system. When not needed to provide system balancing reserves, a modernized JKPGP with increased pump and PG reliability and flexibility would also be able to support periods when additional generation is needed (like winter cold snaps), provide a load during periods of over generation by pumping water to Banks Lake either to support irrigation demand or energy storage, and support marketing opportunities to take advantage of low or high cost energy periods.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Environment consequences for Alternative C would be the same as Alternative B.

3.8.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.8.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

The Odessa Subarea Special Study Draft EIS evaluates alternatives to deliver surface water from the CBP to irrigated lands using Banks Lake facilities. Some Odessa study alternatives could have effects through depletions of Lake Roosevelt/Columbia River and through increased volume of water flowing through Banks Lake changing retention times. These effects are analyzed in the Draft EIS. Hydrologic and water quality analyses show no cumulative effects for those resources. Furthermore, the modernization of JKPGP does not result in any depletion or retention time changes so would not have cumulative effects associated with the Odessa Subarea Special Study. The minor effect of daily variation in lake levels would not be increased or affected by the proposed action in the Odessa Subarea Special Study Draft EIS.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.9 Recreation

This section examines potential effects on visitation and sightseeing at the Grand Coulee Dam, Visitor Center, JKPGP, and in the vicinity of Banks Lake. It also describes effects on dispersed and developed water-oriented recreation opportunities and activities at Banks Lake. The proposed action would have no direct adverse effect on recreation at Lake Roosevelt or other upland locations in the area.

3.9.1 Affected Environment

The analysis area for recreation focuses on the vicinity of the JKPGP, including the Grand Coulee Dam, Visitor Center, and the area surrounding Banks Lake. At Banks Lake, CBP operations will continue to provide delivery of irrigation water and balancing of power reserves and load shaping. Water-oriented recreation at Banks Lake is considered to include both water-dependent recreational activities such as boating, water skiing, fishing, and swimming, as well as adjacent upland activities such as camping and picnicking that do not depend on water access, but are enhanced by being near it.

Sightseeing Opportunities and Attractions

Sightseeing can include walking or hiking, driving a vehicle, boating, and bicycle touring. These activities emphasize examining the natural scenery and man-made structures, and take advantage of facilities and resources such as scenic overlooks, interpreted travel routes, guided tours, and events such as the laser light show at Grand Coulee Dam.

The Grand Coulee Project offers tours and facilities that interpret project operations, as well as local and natural history. Guided tours are available free of charge on a first-come, first-served basis beginning April 1 through October 31. Currently, tours enter the TPP and include views of the turbines inside the powerhouse and a van ride across the top of Grand Coulee Dam. However, programmed maintenance, overhauls, and construction at the TPP will likely require rerouting these tours for several seasons, with the new tour route potentially including the JKPGP instead of the TPP.

The laser light show at Grand Coulee Dam is presented nightly starting the Saturday of Memorial Day weekend through September 30. The 36-minute show, shown across the face of the dam and the TPP, is viewable from many locations in the downstream area and attracts large numbers of viewers each night.

Banks Lake is a highly visible scenic resource for sightseers traveling on SR 155, which parallels much of its eastern shoreline. SR 155 also passes by JKPGP and the Visitor Center where it affords remarkable views above and below Grand Coulee Dam. This portion of SR 155, from below Banks Lake to beyond Grand Coulee Dam, is the central portion of the 150-mile-long Coulee Corridor National Scenic Byway. The Coulee Corridor was designated as a Washington State Scenic Byway in 1997 and a National Scenic Byway in 2005. An interpretive plan and design guidelines were funded by the National Park Service and include a number of references to areas at Banks Lake and Grand Coulee Dam (Otak 2009).

Management of Banks Lake and Facilities

Reclamation lands and facilities around Banks Lake are managed by the Washington State Parks and Recreation Commission (WSPRC) and the WDFW under agreements signed in 2003. The WSPRC is responsible for the O&M of the 3,500 acre Steamboat Rock State Park (SRSP) Recreation Area, which includes the Steamboat Rock Rest Area and Boat Launch, the Jones Bay Campgrounds, the Osborn Bay SW Campground and Boat Launch, the Northrup Canyon Natural Area, and the Castle Rock Natural Area Preserve located just east of Banks Lake. The SRSP has approximately 50,000 lineal feet of shoreline ranging from long stretches of straight shoreline to very complex coves and inlets. WSPRC has recently completed a management plan for SRSP (WSPRC 2010).

The WDFW operates and maintains six less-developed water access facilities. They are scattered along the reservoir and include unpaved boat launches and other facilities. The six facilities are Dry Falls, Dry Falls Campground, Million Dollar Mile South, Million Dollar Mile North, Osborn Bay Southeast, and Osborn Bay Southwest. The WDFW also manages two very primitive access locations, Fordair and Poplars.

Three of the largest recreational facilities at the reservoir (Sunbanks Resort, Coulee Playland, and Coulee City Community Park) are operated by private concessionaires or lessees. The Sunbanks Resort is administered by the Washington State Department of Natural Resources (Reclamation 2001). Electric City and Coulee City have public park lease agreements with

the WSPRC and, in turn, have developed agreements or leases with other parties. The town of Electric City operates the Electric City Public Park and has a concession agreement with Coulee Playland to operate the facilities at Coulee Playground. The City of Coulee City has a public park lease from Reclamation for the operation of the park facilities at Coulee City Community Park and in turn subleases to Grant County Port District 4 to operate and maintain the breakwater system and marina near the Coulee City Community Park.

Visitation at Grand Coulee Dam and Banks Lake

The Grand Coulee Dam, Visitor Center, and public tours are popular tourist attractions in the area. An average of nearly 280,000 people annually visited the dam during the 2008 to 2010 period (Brougher 2011). Peak visitation occurs in July each year. The Visitor Center is open daily (except New Year's Day, Thanksgiving, and Christmas) from 9:00 a.m. to 5:00 p.m., with extended hours between Memorial Day and September 30.

Water-based recreation is another important social and economic activity in the Columbia River Basin. Banks Lake attracts visitors from both the local area and from more distant population centers like Spokane and the Puget Sound region due to its diverse and outstanding recreational opportunities. Many recreationists are drawn to the reservoir because of the unique and scenic natural features of the area. Other visitors come to seek uncrowded recreational opportunities, sunny days, and warm water. In addition, Banks Lake supports one of the finest fisheries in the state as well as a variety of camping, swimming, boating, picnicking, and other recreational opportunities (Reclamation 2004).

Local residents tend to recreate at Banks Lake during the day, but typically do not stay overnight. Visitors from outside the immediate area frequently use the overnight facilities. Within the mid- and upper-Columbia River Basin, Banks Lake facilities account for approximately 16 percent of the total developed campsites (661) and 9 percent of the developed boat launches (12).

SRSP is the most visited recreational resource at Banks Lake, accounting for over 580,000 visitor days in 1997 (Reclamation 2004). Based on anecdotal data for other recreation resources such as the WDFW water access facilities, Sunbanks Resort, and the Coulee City Community Park, the total estimated number of visitors annually is estimated at over 650,000. Most of the water-oriented recreation at the reservoir occurs during the warmest months of the primary recreation season, May through October.

Reservoir-Oriented Recreation Facilities

Boat Launching and Moorage Facilities

There are 12 facilities at Banks Lake from which the public can launch boats from trailers. Their level of development ranges from facilities with two-lane concrete ramps, floating docks, paved and marked parking for vehicles and boat trailers, restrooms, areas of irrigated lawn, shade trees, and drinking water, to very basic facilities that provide unpaved entries into

the reservoir, unpaved parking areas, vault toilets, and perhaps informal areas for camping. The largest, most developed, and most used facilities are the SRSP Day Use Area, SRSP Rest Area, Coulee Playland, and Coulee City Community Park. Each of these has two-lane concrete ramps and nearby camping, overnight, and day use facilities. These four facilities provide the majority of the launching capacity at Banks Lake. Sunbanks Resort also has a one-lane boat launch and nearby camping, overnight, and day use facilities.

The SRSP Day Use Area and Coulee City Community Park boat launches are functional down to an elevation of 8 feet below full pool (1562 feet AMSL), while SRSP Rest Area is functional down to 10 feet below full pool (1560 feet AMSL). The Coulee Playland and Sunbanks Resort boat launches are functional only to 5 feet below full pool (1565 feet AMSL).

Six of the remaining seven boat launches at Banks Lake are managed by WDFW. These facilities provide access to parts of the reservoir that are more distant from and not accessed as readily from the larger facilities. Most of the ramps for these boat launches consist of graded entries into the reservoir, some of which are graveled and some of which are not. They are generally reported to operate over an elevation range of up to 5 feet below full pool (1565 feet AMSL). The seventh similar facility is the Osborn Bay Southwest Campground facility, which is managed by WSPRC and is functional down to an elevation 10 feet below full pool (1560 feet AMSL). The WDFW facilities also have vault toilets, graveled parking areas, and picnic tables. Observations at WDFW's Dry Falls/Ankey #1 boat launch on October 18, 2011 revealed that this boat launch was still operational at the maintenance drawdown extreme elevation of 1532 AMSL.

No full service marinas are available at Banks Lake. Slips or docks for temporarily or seasonally mooring boats are available at Coulee City Community Park, Sunbanks Resort, and Coulee Playland.

The Dry Falls, Million Dollar Mile North and South, Barker Flat, and Coulee Playland boat launches (all of which have minimum useable elevations to 5 feet below full pool) can be more difficult to access and use during periods of lower water elevations in Banks Lake. When this occurs, launching is reported to increase at the Osborn Bay Southwest Campground and SRSP Rest Area boat launches (which are useable down to an elevation of 10 feet below full pool). Nonetheless, all 12 boat launch ramps are generally considered to be functional throughout the recreation season, although some are at the low end of their operating range at the end of the required drawdown in August.

Swimming Facilities

Developed swimming areas are located at the SRSP Day Use Area, Coulee City Community Park, Coulee Playland, and Sunbanks Resort. Under current conditions, all four developed swim areas are functional during the summer recreation season, except for August, when only the Coulee City Community Park swimming area is functional. However, low pool

conditions in August sometimes contribute to stagnant water conditions in the Coulee City Community Park swimming area that make even this area unavailable. Consequently, the city is considering installing an aeration device or other measures to improve the park's swimming area (Reclamation 2010a).

Campgrounds

Camping is a popular activity at Banks Lake, and most campgrounds have at least some portion located near the shoreline. Eleven locations have developed camping areas. They range from fully developed recreational vehicle (RV) and tent sites to primitive areas with no designated campsites. Full-service RV utility sites and formal tent sites are provided at Coulee City Community Park, SRSP, Coulee Playland, and Sunbanks Resort. Less developed facilities without RV utility hookups, but including vault toilets, fire rings, picnic tables, and pedestal grills are found at Jones Bay, Osborn Bay Southwest, and Dry Falls campgrounds (Reclamation 2001). Most of the developed camping facilities are in the Steamboat Rock/Barker Flats sector of the reservoir. Camping also occurs at the six WDFW sites discussed previously. Dispersed camping areas are accessed by the primitive road system or by boat. Some of the more popular areas for dispersed camping are southeast of Banks Lake south of the Million Dollar Mile North Boat Launch, Kruk's Bay/Airport Bay, Osborn Bay, Barker Flat, Old Devils Lake/Lovers Lane, and along the Steamboat Rock peninsula's west shore (Reclamation 2004).

Under current conditions, the boat launch facilities adjacent to campgrounds and day use areas are functional during the primary recreation season. In August, the inability to use the developed swimming areas at the SRSP Day Use Area, Coulee Playland, and Sunbanks Resort may contribute to a decrease in use at these campgrounds and the day use areas near them. Reservoir elevations during most of the recreation season are high enough that the aesthetic setting and desirability of most developed campgrounds or day use areas is maintained. In August, the amount of exposed shoreline at most of the more developed day use areas and campgrounds is less than 100 feet, although it is sometimes between 100 and 250 feet at the Coulee City Community Park.

Day Use Ares

Much of the day use activity at Banks Lake occurs near the same developed and dispersed areas used for launching boats, swimming, and camping. Developed picnic sites and playgrounds can be found at the Coulee City Community Park, SRSP Day Use Area, Coulee Playland, and Sunbanks Resort. Some of the boat launch areas operated by WDFW also have facilities, such as restrooms and parking areas that are used by people participating in day use activities. Activities that take place at, or originate from, day use areas include individual and group picnicking, riding personal water craft, wind surfing, scuba diving, wildlife observation, hiking, and horseback riding (Reclamation 2004).

Land-Based Recreation

The Banks Lake Management Unit of the 192,000-acre Columbia River Basin Wildlife Area surrounds much of Banks Lake. The unit is managed by WDFW and includes 44,700 acres of land owned by Reclamation. It supports hunting and wildlife viewing. Waterfowl hunting near Banks Lake takes place in the fall and early winter. Upland game birds such as quail, chukar, and pheasant can be found in undeveloped brushy areas and stubble fields near the reservoir. Hunting for mule and white-tailed deer also occurs near the reservoir.

Wildlife viewing is an increasingly popular activity statewide and at the reservoir. The Banks Lake area supports a variety of wildlife observation opportunities, trails, scenic vistas, and unique plant communities, such as the Northrup Canyon Natural Area. Migratory and resident birds that can be viewed include great blue herons, white pelicans, sandhill cranes, hawks, long-horned owls, and bald eagles (Reclamation 2004). Mammals like deer, beaver, muskrat, and rabbit are abundant. Developed trails in the SRSP Recreation Area provide good wildlife viewing opportunities.

3.9.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The recreation impact analysis is based on changes in the provision, availability, or access to recreation facilities and opportunities in the vicinity of the JKPGP, including the Grand Coulee Dam, Visitor Center, and the area surrounding Banks Lake.

Alternative A - No Action

Reclamation would continue operating the JKPGP with the current maintenance, irrigation supply, and power production schedules. This would have no effect on existing or future provision, availability, or access for sightseeing and tourism at Grand Coulee Dam, the Visitor Center, the laser light show, or the JKPGP. The JKPGP could be available to accommodate public tours potentially displaced from the TPP until the failure of a generator, pump-generator, or other major plant component creates less safe conditions or requires overhaul and modernization. At that time, access to JKPGP for public tours could be restricted or eliminated due to considerations for public safety and construction efficiency.

Operation of Banks Lake and resulting fluctuations in water levels would not change under the No Action Alternative. Therefore, there would be no effect on the provision, availability, or access to reservoir-oriented or land-based recreation facilities and opportunities at the reservoir compared to current and historic conditions.

Alternative B – JKPGP Modernization (Preferred Alternative)

Construction and maintenance activities associated with the JKPGP modernization could result in short-term, minor effects on public access to Grand Coulee Dam and the JKPGP.

The activities most likely to be affected would be occasional guided tours across the dam and potential future tours that Reclamation may choose to relocate to JKPGP due to construction at the TPP. The tours could require rerouting or temporary cancellation due to construction activities or movement of oversized loads at JKPGP. The modernization activities are expected to have no effect on access to or enjoyment of the Visitor Center or the laser light show.

As discussed under Hydrology, operation of Banks Lake and resulting fluctuations in water levels would not change noticeably under Alternative B compared to current conditions. Under the proposed modernization, reservoir elevations would remain within the operating range of 1565 feet AMSL to 1570 feet AMSL throughout the primary recreation season. There would be some increase in daily fluctuations in reservoir elevations, but daily changes would be within a few inches of what currently occurs. Therefore, there would be no adverse effect on the provision, availability, or access to reservoir-oriented or land-based recreation facilities and opportunities at the reservoir compared to current and historic conditions.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Alternative C would include additional localized construction compared to Alternative B for the decoupling from the left powerhouse. This added construction would not change the type of impacts or their effects from those described above for Alternative B in the vicinity of JKPGP and Grand Coulee Dam, or at Banks Lake.

3.9.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.9.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Alternative B would have cumulative effects in combination with overhaul of the turbines and generators at the TPP. Maintenance and construction activities at both the TPP and JKPGP would reduce options for providing guided tours of power facilities at the Grand Coulee Project for several seasons. This unavoidable impact is considered non-significant due to its temporary duration. No other adverse cumulative effects on sightseeing and tourism in the vicinity of Grand Coulee Dam are foreseen.

At Banks Lake, Alternative B could have cumulative effects in combination with the proposed Odessa Subarea Special Study proposed action. Unless existing boats ramps were lengthened to access lower water levels, drawdowns of the potential magnitude of those being examined for the Odessa Subarea Special Study could leave some or all existing Banks Lake boat ramps stranded and outside of their useful range during a portion of the summer recreation season, even during a year of average precipitation. This level of potential

cumulative effect would far exceed the relatively minor daily fluctuation of a few inches that could result from the JKPGP project operations. In addition to boating access, all other types of water-oriented recreation would also likely be adversely affected by the diminished and more difficult access to the reservoir and shoreline.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.10 Transportation

This section addresses how traffic caused by the proposed action would affect roadways and travel in the vicinity of Grand Coulee Dam and the JKPGP.

3.10.1 Affected Environment

The JKPGP and Grand Coulee Dam are located on the Columbia River north of the City of Grand Coulee and south of the Town of Coulee Dam in Grant and Okanogan counties in north-central Washington State, approximately 90 miles west of Spokane and 230 miles east of Seattle. Access to and from the Grand Coulee Dam area is provided by US Highway 2, and SR 17, 21, 155, 174, and 283/28 as shown in Figure 3-10. Access to the actual Grand Coulee Dam and JKPGP themselves is provided by Reclamation roads via SR 155. Traffic volume data for SR 155 are shown in Table 3-7.

Table 3-7. Average daily two-way traffic - State Route 155, Coulee Dam.

State Route	Milepost	Location	2006	2007	2008	2009	2010
155	25.73	After Junction SR 174	5,300	5,100	4,800	5,500*	5,700
155	28.04	Entering City Of Coulee Dam	5,200	5,300	N/A	5,100*	5,400*

* based on actual count
Source: WSDOT 2010

The main road of concern is SR 155, a paved, generally two-lane, minor arterial road. It is the main north-south route through the Grand Coulee Dam area. From its intersection with SR 174 in west Grand Coulee, the highway heads northeast, through town, past Grand Coulee Dam, JKPGP, and the Grand Coulee Dam Visitor Center. SR 155 provides three travel lanes in the vicinity of the Visitor Center and extending uphill beyond the dam crest and JKPGP, with the added third lane provided for southbound travel through the grade ascent. The road continues through west Coulee Dam, crossing the Columbia River about ½-mile downstream of the dam via the Columbia River Bridge at Grand Coulee Dam to east Coulee Dam, thence through Nespelem to its terminus in Omak.

The Columbia River Bridge at Grand Coulee Dam is the original bridge constructed in the 1930s during the building of Grand Coulee Dam. Vehicles crossing the bridge are limited to 20,000 pounds per axle on 3- or 4-axle single units. Six or more axle combination units are also limited to 20,000 pounds per axle. The bridge has a restricted height of 14 feet 3 inches.

Traffic becomes congested on the east and west approaches to the bridge when large trucks are crossing.

Access to JKPGP and the Reclamation road across Grand Coulee Dam is located off SR 155 between the City of Grand Coulee and the Town of Coulee Dam. However, security restrictions prohibit general public traffic on the road atop the dam.

The Grand Coulee Project generates vehicle traffic as a result of operations, maintenance and construction, and public visitation. Presently, approximately 400 people are employed at Grand Coulee Dam, associated facilities, and offices. Seasonal peak traffic volumes are handled adequately during the three shift changes without causing congestion. In addition, the Grand Coulee Dam, Visitor Center, and tours are popular tourist attractions. An average of nearly 280,000 people in approximately 58,000 vehicles annually visited the dam during the 2008 to 2010 period (Brougher 2011). Traffic patterns associated with the current operation of Grand Coulee Dam, JKPGP, and the Visitor Center are considered to be the local norm.

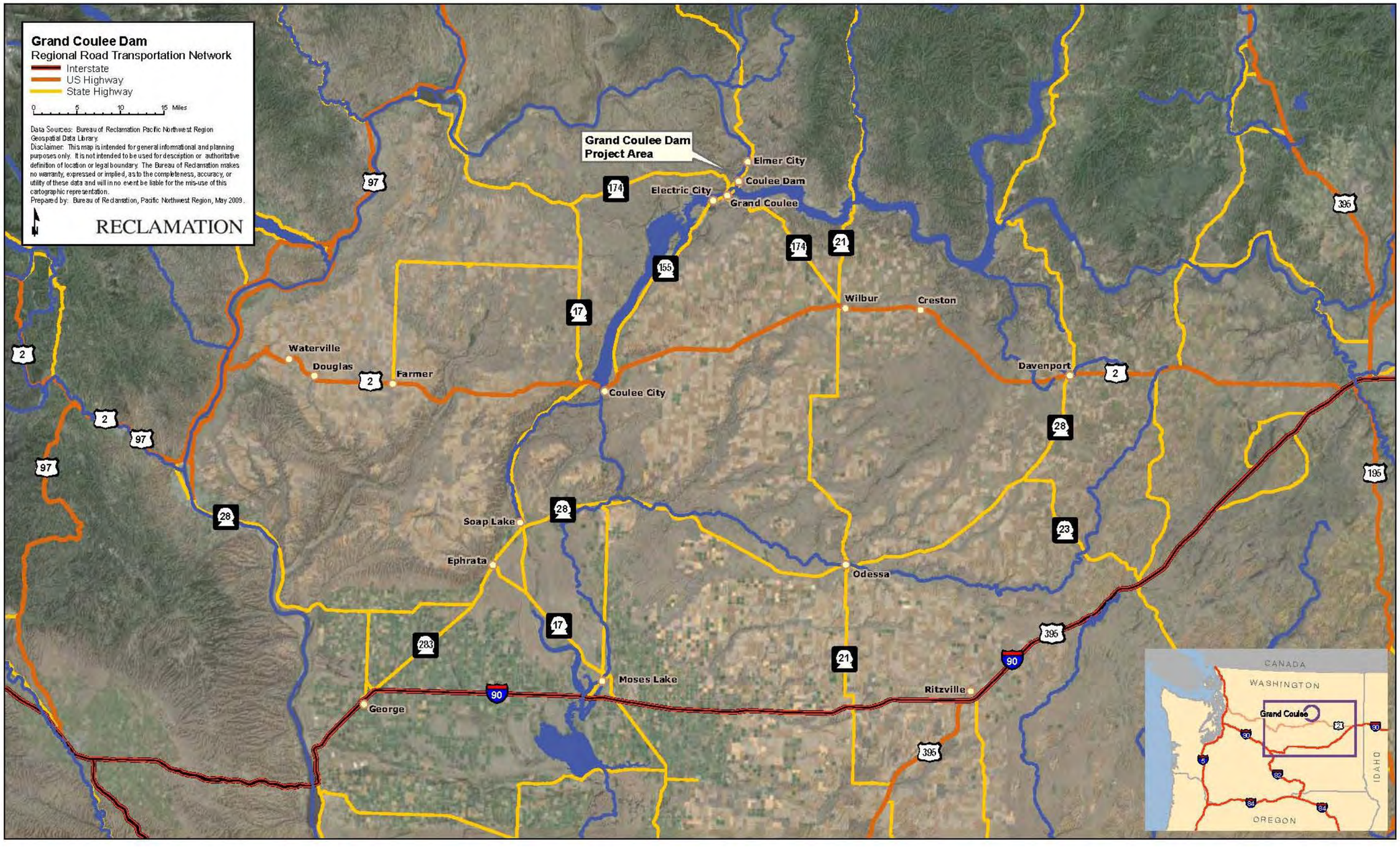

Figure 3-10. Map showing transportation routes to Grand Coulee Dam.

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3.10.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

A qualitative assessment of traffic impacts was performed, based on the anticipated construction procedures and equipment, review of existing conditions, and traffic levels on key roadways. Transportation impacts would be considered significant if project construction or operation caused substantial increases in traffic volumes or frequent or lengthy delays or disruptions of existing vehicular traffic.

Alternative A - No Action

Under the No Action Alternative, the need for maintenance would increase. The difficulty in obtaining replacement parts likely would continue to increase based on the aging technology and scarcity of replacement parts. The timing and duration of future maintenance periods would depend on the nature of the problems to be resolved. Maintenance would be performed by existing Reclamation employees and by contractors, if necessary.

Any potential onsite contractor workforce would likely range from 12 to 25 temporary workers based on prior experience at JKPGP and programmed maintenance at the TPP. This increase in workers could result in an additional 12 to 25 vehicle trips to and from the JKPGP, an increase of about 0.4 percent to 0.9 percent in the average daily two-way traffic on SR 155 between the entrance to the Town of Coulee Dam (mile marker 28.04) and the junction of SR 155 and SR 174 (mile marker 25.73). No adverse workforce related traffic impacts have occurred from similar numbers of additional temporary workers and associated increases in vehicle trips in the past, and none would be expected for this alternative.

Deliveries of maintenance related materials and equipment would use existing roadways and be unlikely to cause substantial adverse traffic impacts.

No significant adverse maintenance related transportation impacts would be expected.

Alternative B – JKPGP Modernization (Preferred Alternative)

The majority of the modernization work would be completed within the confines of the JKPGP by contractor workforces. Off-site staging, assembly, and maintenance work would be accomplished at Reclamation's Industrial Area Salvage Yard located about ½-mile southeast of JKPGP on the north side of SR 155.

Primary access to the construction and laydown areas would be via SR 155. The distance from the laydown area main gate to the JKPGP entrance gate is ⅓-mile using SR 155. No new access roads would need to be built or upgraded for the overhaul.

Potential onsite contractor workforce would likely average up to 32 workers. This increase in workers would result in an average of up to 32 additional vehicle trips to and from the JKPGP or laydown area, an increase of about 1.2 percent in the average daily two-way traffic on SR 155 between the entrance to the Town of Coulee Dam (mile marker 28.04) and the junction of SR 155 and SR 174 (mile marker 25.73). No adverse workforce related traffic impacts have occurred from similar numbers of additional temporary workers and associated increases in vehicle trips in the past, and none would be expected for this alternative.

Routine deliveries of construction related materials and equipment would use existing roadways and be unlikely to cause adverse traffic impacts. Slow moving vehicles delivering oversized equipment and parts could cause temporary, short-term traffic congestion on area roadways. Such deliveries are expected to be intermittent and infrequent. Transport of oversized loads would comply with applicable Federal and State requirements that would substantially reduce or eliminate adverse effects. Vehicles transporting oversize or overweight materials for the modernization project that are unable to cross the restricted Columbia River Bridge would require alternate delivery access to the JKPGP. Access via the Reclamation road across Grand Coulee Dam could be arranged and approved in advance by Reclamation, if required.

Construction related traffic would not prevent movement or response of emergency vehicles. If access to the JKPGP fire station was to be temporarily restricted due to construction or transport of oversized loads, prior arrangements would be made with the fire department to reposition fire trucks and emergency equipment, as necessary. The effect of the local traffic from the additional personal vehicles and trucks during the proposed construction and maintenance activities would be minor. Construction generated traffic would be negligible compared with existing traffic levels in the area. No significant adverse transportation impacts are expected.

There would be no permanent increase in traffic or other transportation related impact with the JKPGP's continued operation following the modernization. Maintenance requirements and intervals likely would be reduced compared to the No Action Alternative. Operations would not cause any changes in traffic.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Decoupling the JKPGP from the left powerhouse would change the deliveries required to accomplish the decoupling work but would be a minor addition to that described for Alternative B, thus, the effects of JKPGP Alternative C would be very similar to those described for Alternative B.

No significant adverse transportation impacts would be expected.

3.10.3 Mitigation

Alternative A - No Action

No mitigation is required.

Alternative B - JKPGP Modernization (Preferred Alternative)

Compliance with contract specifications and Federal and State requirements for transport of oversize loads would ensure there are no significant adverse transportation impacts. No mitigation would be needed for the construction or operation of Alternative B.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Mitigation for Alternative C would be the same as Alternative B.

3.10.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

Construction traffic generated by Alternative B would add to that generated by the TPP. However, even if the peak periods of traffic generation of these two projects were to overlap (the worst case scenario), the combined peak increase would be expected to be an increase of about 2.6 percent in the average daily two-way traffic on SR 155 with the Town of Coulee Dam (Reclamation 2010b). This would be a negligible effect when compared with existing traffic levels and highway capacity in the area.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.11 Socioeconomics

This section presents estimates of the regional economic impacts resulting from changes in construction expenditures for the proposed action. The regional economic impact analysis considers both the initial or direct impact on the primary affected industries and the secondary impacts resulting from those industries that provide inputs to the directly affected primary industries. This analysis also includes the changes in economic activity stemming from household spending of income earned by those employed in the sectors of the economy affected either directly or indirectly. These secondary impacts are often referred to as ~~"~~multiplier effects."

Data from 2007 were used to assess the regional economic effects because the most recent data from 2009 are proprietary, are not readily accessible, and are believed to be little changed from the 2007 input-output multipliers. In addition, the 2007 data provides a meaningful comparison to the effects of the Grand Coulee Dam TPP project that used the same multipliers (Reclamation 2010b).

3.11.1 Affected Environment

This section describes the social and economic conditions in the five-county region surrounding JKPGP and Grand Coulee Dam. The study area encompasses Douglas, Ferry, Grant, Lincoln, and Okanogan Counties in north central Washington State. Key study parameters include the study area's population, public schools enrollment, employment, and labor income.

Population

The Census Bureau estimated a 2010 population of 188,146 for the entire five-county study area. All study area counties experienced an increase in population since the 2010 census, as summarized in Table 3-8 below. Overall increases varied over a wide range, from a modest 0.5 percent for Lincoln County to a more robust 21.3 percent for Grant County.

Table 3-8. Estimated population and change for the five-county study area.

County	2000 Population	2010 Population	Change	Percent Change
Douglas	32,654	38,372	5,718	17.5
Ferry	7,257	7,478	221	3.0
Grant	74,952	90,924	15,972	21.3
Lincoln	10,135	10,186	51	0.5
Okanogan	39,584	41,186	1,602	4.0
Study Area Total	164,582	188,146	23,564	14.3

Source: U.S. Census Bureau 2011, Population Division.

Local School Enrollments

The Grand Coulee Dam School District provides public primary education for the JKPGP vicinity including the town of Coulee Dam and the city of Grand Coulee. The district operates three schools, including Center Elementary School and Grand Coulee Middle School in the city of Grand Coulee, and Lake Roosevelt High School in the town of Coulee Dam. District enrollment in May 2011 was 663 students according to the Washington State Report Card (OSPI 2011). The district employed 41 classroom teachers. The District's budget relies on State funds (55 percent), Federal funds (33 percent), local sources (12 percent), and very few other sources.

Employment

Employment measures the number of jobs related to each sector of the economy. Table 3-9 shows both employment in the five-county study area for 2010 and total labor income. In the study area, activities related to the agriculture, forestry, fish, and hunting sectors generate the largest number of jobs (33.0 percent of total regional employment). The government sector ranks second in terms of overall number of jobs in the study area (21.7 percent) followed by retail trade (9.0 percent).

Table 3-9. 2010 Employment and labor income for the five-county study area.

Industry	Employment Jobs	Percent of Total	Labor Income (millions)	Percent of Total
Ag, Forestry, Fish & Hunting	25,072	33.0	$88.8	19.2
Mining	189	0.2	$3.3	0.7
Utilities	40	0.1	$0.4	0.1
Construction	2,465	3.2	$17.8	3.8
Manufacturing	5,070	6.7	$52.2	11.3
Wholesale Trade	2,188	2.9	$19.1	4.1
Retail Trade	6,816	9.0	$32.9	7.1
Transportation & Warehousing	1,349	1.8	$9.9	2.1
Information	524	0.7	$2.8	0.6
Finance & Insurance	934	1.2	$7.6	1.7
Real Estate & Rental	656	0.9	$2.6	0.6
Professional- Scientific & Tech Svcs	940	1.2	$9.2	2.0
Management of Companies & Enterprises	68	0.1	$1.0	0.2
Administrative & Waste Services	1,151	1.5	$5.8	1.2
Educational Services	194	0.3	$0.4	0.1
Health Care & Social Assistance	3,819	5.0	$25.3	5.5
Arts Entertainment & Recreation	805	1.1	$1.8	0.4
Accommodation & Food Services	4,410	5.8	$13.7	3.0
Other Services Ex. Public Admin	2,701	3.6	$8.4	1.8
Total Government	16,470	21.7	$159.8	34.5
Totals	75,861	100.0	$463.0	100.0

Source: Washington State Employment Security Department 2011, Workforce Explorer.

Labor Income

Labor income is the sum of employee compensation and proprietor income. The government sector generates the largest portion of labor income in the region (34.5 percent of total regional labor income). The sectors related to agriculture, forestry, fish, and hunting rank second (19.2 percent of total regional labor income). Ranking third is the manufacturing sector (11.3 percent of total labor income).

3.11.2 Environmental Consequences

Construction, modernization, and maintenance activities associated with the action alternatives would result in positive economic output at the regional level.

Impact Indicator/Methods for Evaluating Impacts

The impact assessment methods used to estimate the regional economic effects stemming from construction expenditures for the proposed action rely on an economic input-output approach to estimate the effects of economic changes in the region. The common measures of regional effects include economic output (expressed as sales), employment, and income. The input-output multipliers used for this study are based on those used for the TPP project.

Input-output approaches consider commodity flows from producers to intermediate and final consumers. Industries produce goods and services for final demand and purchase goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services (indirect purchases) continues until leakages from the region (imports and value added) stop the cycle.

These indirect and induced effects (the effects of household spending) can be mathematically derived using a set of multipliers. The multipliers describe the change of output for each and every regional industry caused by a unit change in final demand for any given industry. The multipliers rely on data from a variety of sources, including the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor, and the U.S. Census Bureau. This analysis is based on the 2007 multipliers for Washington's Douglas, Ferry, Grant, Lincoln, and Okanogan counties that were used for the TPP project (Reclamation 2010b).

Construction expenditures expected to be made inside the five-county study area were considered in the regional impact analysis. Construction expenditures made outside the study area were considered ~~"l~~eakages" and would have no impact on the local economy.

It is assumed that the contractor workforce would move temporarily to the region and spend some of their wages inside the area during the construction period. This analysis also assumes the vast majority of the construction expenditures would be funded from sources outside study area. Money from outside the region spent on goods and services within the region would contribute to regional economic impacts, while money originating from within the study region is much less likely to generate regional economic impacts. Spending from sources within the region represents a redistribution of income and output rather than an increase in economic activity.

For the purpose of the study, construction expenditures within the region were used to measure the total overall regional impacts. The total impacts would be spread throughout the construction period and would vary year by year proportionate to actual expenditures.

Alternative A - No Action

No construction or modernization is anticipated for this alternative; therefore, no regional impacts related to local school enrollments or induced employment and income would be generated.

Reclamation would continue operating the JKPGP pumps and pump-generating units without any system improvements. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. The maintenance schedule would be followed with allowances for emergency repairs or replacements. Maintenance and repair costs, production outages, and time needed to obtain replacement parts would continue to increase based on the aging technology and the scarcity of the replacement parts. Since the timing and duration of future maintenance periods would depend on the nature of the problems to be resolved, maintenance costs are not available.

Alternative B – JKPGP Modernization (Preferred Alternative)

Local School Enrollments

The majority of the construction and modernization work to be performed would likely be completed by separate contractor workforces that would be on site and in the community only for the duration of their specific work assignment. Often, transient tradesmen and workers in these situations do not relocate their families to the temporary job location. Based on experience with the TPP and the smaller size and longer duration of the JKPGP, it is estimated that the JKPGP could result in as many as 16 additional students enrolling in the Grand Coulee Dam school system.

Until student-based State and Federal funding levels were increased in response to the added student population, this would result in a decrease in average funding level per student of about 2.4 percent based on the District's May 2011 student count. It also could increase the student-to-instructional-staff ratio similarly depending on the grade distribution of the added students. While this is an important effect that affects the District's short- and long-range planning and budgeting, the majority of the funding lag is expected to be temporary (less than one academic year) and the low magnitude means that it does not rise to the level of a significant impact.

Regional Economic Effects

The economic impacts are estimated for the five-county regional study area distributed throughout the construction period. The anticipated economic impact would occur throughout the five-county region. These regional impacts would not occur uniformly each year; instead, they would vary year to year proportionate to annual expenditures. The majority of the output, employment, and income impacts are due to the expenditures of the wages earned by the workforce involved in construction activities. Regional economic impacts related to construction expenditures are presented in Table 3-10. It is important to note that the

employment reported below is the potential total of all jobs generated directly and indirectly by the economic input within the study area. As reported previously, the potential number of onsite construction jobs is estimated at up to 32 at one time.

Table 3-10. Construction-related regional economic impacts by alternative.

	Output (Sales) (millions)	Employment (jobs)	Labor Income (millions)
Alternative A - No Action	—	—	—
Alternative B - JKPGP Modernization	$14.5	136	$5.3
Alternative C - JKPGP Modernization and Left Powerhouse Decoupling	$14.5	136	$5.3

Tribal Employment Rights

Tribal employment rights and Indian preference in hiring extends to all construction projects ―on or near" the CCT Reservation. This is accomplished through the Colville Tribal Law and Order Code (Title 10 Employment and Contracting Chapter 10-1 Tribal Employment Rights [CCT 2009]) and other ordinances. The CCT's Tribal Employment Rights Office monitors and enforces employment and contracting rights of Indians and ensures their rights are protected and exerted. Portions of the work associated with the JKPGP modernization would be located near the CCT Reservation. Tribal ordinances would be included among the laws, codes, and regulations covered by the ―Permits and Responsibilities" clause of the Reclamation contract for the work, as appropriate. Reclamation's contractor would be directed to contact the CCT Tribal Employment Rights Office for information about these requirements. However, Reclamation's Contracting Officer is not a party to enforcing Indian preference requirements; it is a matter solely between the Tribe and the contractor.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

The JKPGP modernization would be the same as described in Alternative B. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid. This would require installation of an additional transformer.

Potential effects on enrollment at local schools would be the same as described for Alternative B. The regional impacts on induced employment and income stemming from construction and modernization would be nearly identical to those described for Alternative B, as summarized in Table 3-10.

Tribal Employment Rights Ordinance

Tribal Employment Rights Office information would be the same as described under Alternative B.

3.11.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.11.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

The potential effects on school enrollments of the TPP combined with those of the JKPGP Modernization Project could result in as many as 46 additional students enrolling in District schools during all or parts of the overlap of the two projects. This would be a seven percent increase in the District's student population; however, it is likely that if this level was reached it would occur over a several year period, with students joining and departing the District at various times during the fiscal year. This would help to mitigate the potential lag in State and Federal student funding in any one year.

Implementation of Alternative B would contribute less than one-half of one percent to the regional employment and income of the five-county study area, which would be spread throughout the construction period. Programmed maintenance, overhauls, and construction at the TPP would be concurrent with activities at JKPGP and would contribute to cumulative regional economic impacts. While these and other actions in the region would provide an important beneficial contribution to economic activity over a multi-year period, the cumulative regional economic effect of these actions would still be very small relative to the overall regional economy. Cumulative employment and income during the period within which the JKPGP modernization would take place are likely to be similar to, but marginally greater than that shown in Table 3-9.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.12 Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 11, 1994, requires Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities, as well as the equity of the distribution of the benefits and risks. Environmental Justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group should bear a disproportionate share of negative impacts.

3.12.1 Affected Environment

The vicinity surrounding JKPGP includes Douglas, Ferry, Grant, Lincoln, and Okanogan counties, which were selected as the local study area. Table 3-11 provides the numbers and

percentages of population in 2009 for six racial categories (White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Two or More Races), the total racial minority population, and the Hispanic or Latino population for each county, the combined five-county study area, and the State of Washington (U.S. Census Bureau 2010a).

The proportion of American Indians within the local study area is more than three times greater than the State of Washington due largely to the presence of the CCT Reservation within the study area and the nearby Spokane Tribe of Indians Reservation. Conversely, the proportion of persons who are Asian or Black or African American is substantially less than for the State of Washington. While the Total Racial Minority Population of the five-county study area, at 8.4 percent, also is less than the State's percentage of 15.6, the Hispanic or Latino representation within the study area is nearly three times greater than the State, at 27.2 percent and 9.6 percent, respectively.

Table 3-11. Race and ethnicity.

	Study Area												State of Washington	
	Douglas County		Ferry County		Grant County		Lincoln County		Okanogan County		Study Area Total			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population	37,565	-	7,520	-	88,098		10,248	-	40,552	-	183,983	-	6,465,755	-
White	35,446	94.4	5,902	78.5	83,034	94.3	9,735	95.0	34,378	84.8	168,495	91.6	5,201,398	80.4
Black or African American	382	1.0	17	0.2	1,147	1.3	28	0.3	280	0.7	1,854	1.0	220,417	3.4
American Indian and Alaska Native	713	1.9	1,319	17.5	1,482	1.7	262	2.6	4,612	11.4	8,388	4.6	91,437	1.4
Asian	371	1.0	23	0.3	1,079	1.2	30	0.3	313	0.8	1,816	1.0	424,531	6.6
Native Hawaiian and other Pacific Islander	72	0.2	7	0.1	98	0.1	7	0.1	36	0.1	220	0.1	28,884	0.4
Population of two or more races	581	1.5	252	3.4	1,258	1.4	186	1.8	933	2.3	3,210	1.7	244,250	3.8
Total Racial Minority Population	2,119	5.6	1,618	21.5	5,064	5.7	513	5.0	6,174	15.2	15,488	8.4	1,009,519	15.6
Not Hispanic or Latino	27,507	73.2	7,257	96.5	55,694	63.2	9,946	97.1	33,494	82.6	133,898	72.8	5,841,930	90.4
Hispanic or Latino	10,058	26.8	263	3.5	32,404	36.8	302	2.9	7,058	17.4	50,085	27.2	623,825	9.6

Source: U.S. Census Bureau. 2010. American FactFinder

Low-income populations are identified by several socioeconomic characteristics. As categorized by the Census, specific characteristics include income (median family and per capita), percentage of the population below poverty (families and individuals), unemployment rates, and substandard housing. Table 3-12 provides income, poverty, unemployment, and housing information for each county and the State for the year 2009 (U.S. Census Bureau 2010b).

Table 3-12. Income, poverty, unemployment, and housing.

	Study Area					State of Washington
	Douglas County	Ferry County	Grant County	Lincoln County	Okanogan County	
Income						
Median family income	$55,363	$43,529	$48,907	$50,899	$48,159	$68,457
Per capita income	$22,522	$16,283	$19,205	$24,127	$19,367	$29,320
Percent below poverty level						
Families	12.0	12.0	14.4	8.1	14.2	7.9
Individuals	14.3	19.1	19.0	12.6	19.6	11.8
Percent unemployed	7.0	15.0	10.2	4.5	8.7	7.0
Percent of Housing						
1.01 or more occupants per room	5.6	1.5	7.8	2.6	2.9	2.4
Lacking complete plumbing facilities	0.4	2.3	0.1	1.2	0.8	0.5

Source: U.S. Census Bureau. 2010. American FactFinder

Median family income and per capita income for the five counties are notably less than the State average. Compared to the State of Washington, the study area also has greater percentages of families and individuals below the poverty level.

Other demographic data, such as unemployment and substandard housing, also serve as indicators of low income in relation to environmental justice. In 2009, unemployment in three of the five counties was greater than the State's 7.0 percent unemployment rate. Douglas County's unemployment rate matched the State's at 7.0 percent, while Lincoln County's unemployment rate was a relatively low 4.5 percent.

Substandard housing units are typically identified as being overcrowded and/or lacking complete plumbing facilities. The percentage of occupied housing units with 1.01 or more occupants per room was greater in four of the five study area counties than the 2.4 percent for the State; Ferry County's 1.5 percent was notably less than the State percentage. The percentage of housing units lacking complete plumbing facilities in the study area was less than the State percentage of 0.5 percent in both Douglas and Grant counties.

3.12.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

Environmental justice analysis evaluates the effects of potential adverse environmental impacts on natural resources (and associated human health impacts) and socioeconomic impacts to identify and describe potential disproportionate adverse effects to minority and/or low-income populations.

Alternative A - No Action

No adverse natural resource or socioeconomic impacts adversely affecting minority and low-income populations have been identified for the No Action Alternative; therefore, there are no environmental justice impacts.

Alternative B - JKPGP Modernization (Preferred Alternative)

Alternative B could create a total of approximately 32 on-site construction-related jobs at any one time during the 10 to 15 years that the JKPGP project would be ongoing. Some portion of these jobs likely would be filled by persons coming into the study area from outside, although the number cannot be reliably estimated.

Research was conducted during the preparation of this EA relying on lenders, realtors, and residential property managers located in the project area, as well as with businesses and associations outside the region that are familiar with residential vacancy rates, to assess whether new employment associated with the JKPGP project could have a notable effect on the supply or demand for affordable housing. The investigations confirmed anecdotal data that there are many factors at the local, regional, state, and national levels that influence the demand, supply, and cost of rental and owner-occupied housing. The manner, duration, and degree to which these dynamic external factors may work in combination with the demand for worker housing created by the JKPGP project cannot be known at this time.

In summary, the existing demand for rental housing in the project area is generally considered to be high relative to the currently available supply and the JKPGP project would be expected to contribute to that demand; however, it is not reasonably foreseeable that this would result in adverse impacts that could disproportionately affect minority and low-income populations.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Environmental consequences for Alternative C would be the same as Alternative B.

3.12.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.12.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

The TPP Overhaul and other attractants to persons moving into or remaining within the project vicinity and study area would contribute to the demand for housing and could influence upward pressure on the cost of housing to some small degree; however, this is not expected to create an environmental justice impact.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.13 Cultural Resources

3.13.1 Affected Environment

This discussion of cultural resources and the affected environment of the JKPGP Modernization Project is divided into pre-contact archeological resources, post-contact archeological resources, properties of traditional religious and cultural importance to American Indian tribes, and standing structures.

Pre-Contact Archeological Resources

Pre-contact archeological resources are archeological sites, features, artifacts, and other traces of human behavior that pre-date European contact with aboriginal Native American populations. For this project, archeological resources that pre-date 1800 A.D. would be considered pre-contact.

The Grand Coulee area has been subject of numerous archeological investigations. During the 1930s and early 1940s archeological studies were conducted by professional archeologists in preparation for construction of the Grand Coulee Dam. Additional archeological investigations occurred for the construction of the TPP in the 1960s and 1970s when drawdowns of the level of Lake Roosevelt exposed hundreds of archeological sites. Additional cultural resources work has been conducted with the establishment of the FCRPS cultural resources program (Reclamation 2010b).

A review of information in the Washington Department of Archaeology and Historic Preservation WISAARD database shows 10 archeological and historical surveys were conducted within 2 miles of the project area from 2000 to 2011. The records search also indicates that previous surveys did not identify any pre-contact archeological sites or resources within 0.75 mile of the project area. The project area was surveyed for archeological sites in October 2011, and no pre-contact or post-contact period sites were found (Berryman, Henderson, and Mueller 2011).

The extensive disturbance related to construction of the original Grand Coulee Dam from 1933 to 1942 explains why so few archeological sites have been found in the area. Reclamation has compiled data from construction records and formatted it as a GIS dataset. This data was projected onto to the area that encompasses the project. It shows that there is little to no potential for archeological resources north and east of the pumping pipes due to cut and fill for the construction of the Grand Coulee Dam. The area also suffered from landslides that likely disturbed any archeological sites that may have been present.

Post-Contact Archeological Resources

The beginning of the post-contact period is considered 1800 A.D., although it is widely known that Native Americans felt the effects of trade and exploration at least 100 years earlier.

The direct involvement of Euro-Americans in the Columbia River drainage dates to Captain Robert Gray's discovery of the river in May of 1792. A permanent presence in the area began in 1811 when David Thomas founded Spokane House on the Spokane River for the Hudson's Bay Company, although it was moved to Kettle Falls 10 years later. The new post was named Fort Colville and provided most of the food supplies for Hudson's Bay Company posts east of the Cascade Range. Trapping led to a decline in the area's beaver population by the 1840s, and Britain ceded its interests south of the 49th parallel in 1846.

By the late 1840s, the economic focus of the basin shifted from the fur trade to agriculture. By 1900, up to 75 percent of the lowlands within the Columbia River Valley had been planted in orchards, with small communities developed nearby. The desire to expand farming onto the adjacent arid uplands created a push for large irrigation projects like the Grand Coulee Dam.

Washington Territory Governor Isaac I. Stevens forced treaties on many of the Eastern Washington tribes in 1855, requiring them to give up their lands along the Big Bend of the Columbia River. The Colville Reservation was created by an executive order in 1872, but was immediately redrawn to exclude the fertile Colville valley. Interior Salish tribes along the Middle Columbia River were originally settled on the Columbia Reservation in 1879, but the reservation was surrendered in 1883 and the population moved to the Colville Reservation. In 1885, surviving Nez Perce affiliated with Chief Joseph were also settled on the reservation. The North Half of the reservation was ceded in 1892 due to gold discoveries in the area. The South Half of the reservation was opened to non-Indian settlement and the Confederated Tribes of the Colville Reservation lost about a third of their land in the South Half to claims made by non-Indians.

The Grand Coulee Dam was intended to fulfill the need for flood control along the Columbia River, provide irrigation water for the Columbia Plateau, and provide hydroelectric power. The Dam was constructed in three stages with an initial low dam (large enough to serve as a foundation for a larger dam) in 1934 to 1935, the high dam and associated hydroelectric plants from 1935 to 1949, and construction of a forebay and additional dam to increase hydroelectric generation from 1966 to 1978.

A search of the WISAARD database shows that remains of a railroad grade, a segment of an electrical transmission line, a warehouse foundation, and a dump for Grand Coulee Dam-related construction materials have been found in the project area. A railroad supplied construction materials for the Grand Coulee Dam. The original railroad grade followed the middle of Grand Coulee east through the current town of Grand Coulee before turning north to the Dam's Industrial Area. The railroad along the original grade was used throughout the 1930s and 1940s, and then was realigned further to the south when work began on the North Dam of Banks Lake in 1949. By 1950 the railroad was no longer needed and the line was dismantled (Berryman, Henderson, and Mueller 2011).

Properties of Traditional Religious and Cultural Importance to Indian Tribes

The proposed project lies within the traditional territory of the Nespelem Tribe, one of 12 federally recognized tribes that have become incorporated into the Confederated Tribes of the Colville Reservation. The aboriginal territories of the closely-related Sanpoil Tribe lie just to the east, while traditional territory of the Moses-Columbia Tribe is to the south.

Reclamation reviewed various cultural resources studies and records in the WISAARD database within a 2-mile radius of the JKPGP Modernization Project area (Moreno and Curti 2011).

The literature review also indicates that members of the Sanpoil and Nespelem tribes exploited early-maturing root crops south of the Columbia, especially the bitterroot (*Lewisia rediviva*) and small camas (*Camassia quamash*). The bitterroot grows in rocky soils and soils similar to those found on the hills west of the project area. Young adults used stacked rocks (cairns) to mark places where they sought spiritual power (Reclamation 2010b). The considerable ground modifications for Dam construction and since have made it unlikely that any of these resources would be found today.

Based on the literature and record review, a traditional fishing site has been identified within 1-mile of the project area, but will not be affected by the project (Moreno and Curti 2011).

Standing Structures

The Grand Coulee Dam is considered by Reclamation to be a historic property, along with other structures in the project area, including the JKPGP and Left and Right powerhouses. Additional properties in or near the project area are also considered historic properties. In 2006, Reclamation entered into a Memorandum of Agreement (MOA) (Agreement No. 1425-06-MA-1G-7047) with the Washington State Historic Preservation Office (SHPO) to resolve the adverse effect of life-safety modifications to structures in the Grand Coulee Dam Complex. As part of this MOA, Reclamation determined that:

> ~~–~~the dam, powerplants, pumping plants, industrial area, and associated facilities are eligible to the National Register of Historic Places. The Complex includes facilities

associated with construction of the Third Power Plant and forebay dam, which Reclamation has determined are contributing elements although they are not yet 50 years old. Five buildings in the Grand Coulee Industrial Area that are eligible to the National Register and have the potential to be affected by this undertaking are Warehouse 3, Warehouses A and B, the Machine Shop, and the Assembly Shop."

The SHPO concurred with this determination. The MOA dealt primarily with modifications in the Industrial Area, and did not include the Colville Tribal Historic Preservation Office (THPO) as a party. Therefore, this MOA does not necessarily reflect the position of the THPO regarding the eligibility of the Grand Coulee Dam and the properties listed above. Nevertheless, the THPO has, in another MOA (Agreement No. R11MA10732), agreed with the determination that the TPP should be considered National Register eligible.

The properties mentioned in the 2006 MOA provide the starting point for a proposed Grand Coulee Dam Historic District. At this time, Reclamation is preparing a National Register of Historic Places nomination to define this historic district. The nomination will specify the significance areas, historic themes, periods of significance, contributing properties, and boundaries of the historic district. This nomination would be Reclamation's basis for consultation with the SHPO and THPO on the district's National Register eligibility and the basis for Reclamation's nomination of the district for listing in the National Register by the keeper. In the meantime, Reclamation considers the Dam, the three powerplants, JKPGP, and the five buildings in the Industrial Area as historic properties that contribute to the proposed historic district. There are likely additional buildings and structures to be included in the district.

The criteria for evaluating a resource for its National Register of Historic Places eligibility are found in 36 CFR 60.4. The criteria states that the quality of significance in American history, architecture, archeology, engineering, and culture must be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, materials, workmanship, feeling, and association. These include resources:

a) that are associated with events that have made a significant contribution to the broad patterns of our history; or

b) that are associated with the lives of persons significant in our past; or

c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

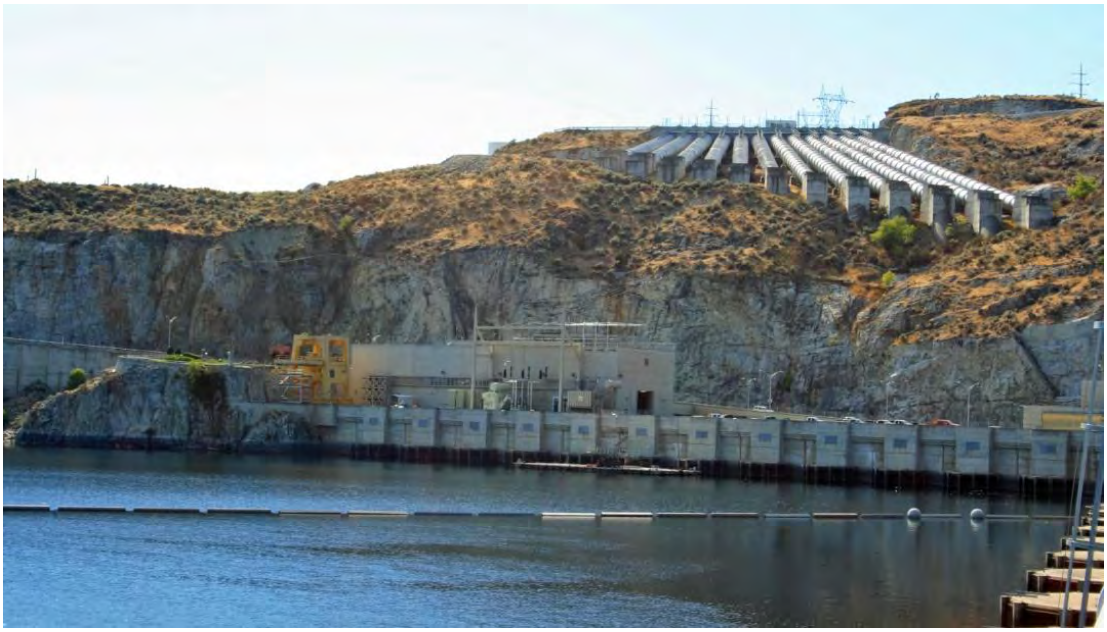
d) that have yielded, or may be likely to yield, information important in prehistory or history.

The proposed historic district meets at least two of the National Register criteria. It is significant under Criterion A for its contribution to American history in the areas of industry and commerce, government, settlement, and recreation. It also is significant under Criterion C for its engineering and architectural contributions.

Two periods of significance have been proposed for the district, 1933 to 1952, and 1966 to 1978 (Hartmans 2010). The 1933 to 1952 period is when the Dam and hydroelectric and irrigation water conveyance features were constructed. The 1966 to 1978 period is for the association with a 12-year timeline involving, 1) construction of the TPP and forebay dam, Visitor Arrival Center, and Dam Operations/Administration Building in the Industrial Area, and 2) refinement of the power generation functions of the JKPGP to better balance the competing needs of irrigation and hydroelectric power (Hartmans 2010; Palmer and Nowick 2011).

The JKPGP, the main subject of the proposed Modernization Project, also meets two of the National Register criteria. The JKPGP began pumping irrigation water from pump units 1 to 6 to fill Banks Lake in 1951, one of the authorized purposes of Grand Coulee Dam. Beginning in 1973, pump-generator units were added for supplemental power generation. The JKPGP is significant under Criterion A for its role in the development of irrigation and irrigated agriculture in east-central Washington and its contribution to power generation integral to industrial development in the Pacific Northwest. It is significant under Criterion C in the area of engineering for design as a pumping plant and its modification for supplemental power generation. Architecturally, it is significant as an example of the Art Deco Public Works Administration (PWA) Moderne style, as best seen in its pump and pump-generating room, Storage Building, and Reception Hall.

Architecturally, the JKPGP is a reinforced concrete building that houses the 12 pump and pump-generation units. To the casual observer, the JKPGP appears to be a parking lot with a one-story Storage Building at its south end and the one-story Reception Hall at its north end (Photograph 3-2). In actuality, the parking lot between them is the roof of the JKPGP. The main portion of the building starts at the level of Lake Roosevelt and then extends downward for about 120 feet. The Reception Hall and Storage Building are integrated internally into the rest of JKPGP. Pump units 1 to 6 were installed in the JKPGP by 1952, and pump-generator units 7 to 12 were installed in 1973, 1983, and 1984. The floor of the main or Pump Gallery is about 60 feet below the surface of Lake Roosevelt. Pump units 1 to 6 are powered by generators 1 to 3 the Left Powerhouse. The power is transmitted from the generators to the pumps via nine 7-1/2-inch copper conductors housed in aluminum tubes called isolated phase (isophase) busses. The busses begin at the generators, exit the Left Powerhouse from a concrete platform, rise up the downstream face of the Grand Coulee Dam, and then enter the JKPGP. Within the building, they curve through a side gallery and then to the main working floor to connect with each pump. On the face of the Dam, the nine isophase busses are supported by a lattice-like metal framework. Concrete stairs are cast in the face of the Dam on the underside of the framework. Reclamation personnel access the isophases busses from the stairs and framework.



Photograph 3-2. View of the JKPGP, facing west. The building is mostly submerged under Lake Roosevelt out of view. The Storage Building is the one-story concrete building to the right of the yellow crane.

The Grand Coulee Dam is the central feature of the Grand Coulee Dam project. It extends in an east-west orientation and impounds the Columbia River, creating Lake Roosevelt as its storage reservoir. A two-lane road crowns the Dam, supported by concrete, open-spandrel arched openings where water enters the Dam spillway through a series of drum gates. The center portion of the Dam is the spillway, which is flanked by the two original powerhouses – the Left Powerhouse and the Right Powerhouse. The Dam, these powerhouses, and the JKPGP are examples of the Art Deco PWA Moderne architectural style.

The Left Powerhouse and its attached Administration Building are historic properties determined eligible for inclusion in the National Register with the concurrence of the Washington SHPO. The Left Powerhouse, a four-story concrete structure completed in 1941, is attached to the west end of the downstream face of the Dam. The powerhouse shelters nine generators rated at 125 MW and three local service generators rated at 10MW. Power from the Left Powerhouse is transmitted to the 230-kV Switchyard on the hill west of SR 155. The Left Powerhouse and its adjacent Administration Building are excellent examples of the Art Deco PWA Moderne architectural style. The Left Powerhouse has prominent interior finishes in the style, including streamlined stainless steel railings and terrazzo floors inlaid with images of the project turbines.

The Grand Coulee Dam Complex also includes the Industrial Area, Transmission Line Area, and Irrigation Features Area. The Transmission Line Area, located on the hill west of the Grand Coulee Dam, includes the 115-kV and 230-kV switchyards. The 230-kV Switchyard, an enclosed rectangular area with 13 bays of steel, H-type take off structures and three buildings, is considered eligible to the National Register of Historic Places.

Features of the irrigation distribution system are on the hill west of the Grand Coulee Dam. These include the 12 pumping pipes that transfer water under pressure up the hill to the 1.6-mile-long Feeder Canal; the siphon breakers and Control Building; and the headgates of the Feeder Canal. The pumping pipes are 12 metal tubes approximately 12 feet in diameter. Twelve breakers are aligned in a north-south line below the Control Building. Constructed in 1948 in the Art Deco PWA Moderne style, the Control Building houses the motors and controls for the siphon breakers. The one-story building fronts an access road to the west that overlooks the beginning of the Feeder Canal.

One historic property, Warehouse 3, is adjacent to the laydown area within the Industrial Area. The Industrial Area is characterized by administrative and engineering buildings and large metal-clad warehouses and maintenance-related buildings with low massing. The area includes many sheds, shops, and other infrastructure. Warehouse 3 was constructed in 1946 using surplus trusses from two identical surplus military hangers of the 4th Series Combat Hangers that were designed by the Butler Manufacturing Company.

3.13.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

In this EA, Reclamation has relied on the regulations that implement the National Historic Preservation Act (NHPA) (36 CFR 60 and 36 CFR Part 800) to help determine if identified cultural resources should be considered significant, and then to determine if the effects of the undertaking on the identified cultural resources should be considered significant and negative. In short, if an effect of this project is considered adverse under 36 CFR 800.5, the project would be found to result in significant negative impacts under NEPA unless they could be resolved through an enforceable agreement like an MOA or Programmatic Agreement (PA) as described in 36 CFR 800.6 and 36 CFR 800.14.

Alternative A - No Action

Alternative A would not have any impact on archaeological resources or properties of traditional cultural or religious significance to tribes. Under the No Action alternative, Reclamation would continue operating the JKPGP pumps and pump-generating units with no system improvements. Operations would continue according to existing protocols, and Reclamation would maintain and operate the equipment according to existing schedules. However, maintenance and repair costs, production outages, and time needed to obtain replacement parts would continue to increase based on the aging technology and scarcity of replacement parts. Issues related to the poor design and wear and tear would become worse over time and this alternative would eventually result in significant negative effects to the JKPGP as a historic property.

Section 2(d) of Executive Order 11593 directs Federal agencies to ~~in~~itiate measures and procedures to provide for the maintenance (emphasis added), through preservation, rehabilitation, or restoration, of federally owned and registered sites at professional standards prescribed by the Secretary of the Interior."

Under the regulations that implement NHPA specified at 36 CFR 800.5(a)(2)(vi), it is an adverse effect if an agency neglects to maintain a historic property and thereby allows it to deteriorate. For this EA, such an adverse effect would be considered a significant negative effect.

Given the value of the JKPGP and its irrigation-pumping and power-generation capacity, it is extremely doubtful that Reclamation would choose an option that would lead to the neglect of the JKPGP. In the unlikely event that the No Action Alternative were chosen, Reclamation would find it progressively more difficult and expensive to maintain the JKPGP as a functional pumping plant and powerplant, and this would cut at the heart of the JKPGP's integrity as a historic property. Unless this adverse effect was mitigated through an MOA or other enforceable agreement, it would have to be considered a significant negative impact.

Alternative B – JKPGP Modernization (Preferred Alternative)

Alternative B would not have any impact on archeological resources or properties of traditional cultural or religious significance to tribes. No archeological resources are on the parcel based on an archeological survey conducted in October 2011. Although a traditional fishing site is within the 1-mile radius area, Alternative B would not cause changes that would affect the ability of the site to continue to be used for fishing.

Work proposed under Alternative B is intended to enable the JKPGP to carry out its historic purposes of irrigation pumping and power generation for the next 30 years. Thus this work would have an overall positive effect on the building and the proposed historic district. However, several aspects of the modernization project likely would have an adverse effect on the JKPGP and in other cases, some details of the work have not been designed at this time or are unknown such that an assessment of their effect on the building and district is not possible.

Part 800.5(b)(ii) of 36 CFR identifies an adverse effect as ~~a~~an alteration of a property including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines." Thus the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (Standards) are the basis for judging whether an undertaking would have an adverse effect on a historic property. Application of these Standards requires information about the history of the property, the feature, or equipment proposed for treatment, and its contribution to the significance of the property. Application of the Standards also requires specific information about the proposed work and how and why it would be carried out.

Several aspects of the modernization under Alternative B would adversely affect the JKPGP. Located next to the pump and pump-generator units, the exciters are original equipment that is necessary for the unit start-ups. Although the replacement exciters will have the same overall function, they will be different in appearance and operation. A second proposed aspect of the modernization that would have an adverse effect is the redesign of the wicket gates on pump-generator units 7 and 8 because the redesign would alter the original, early gate design that resulted in engineering improvements seen in the later four pump-generator units. Although the goal is to improve the operation of pump-generator units 7 and 8 with the redesign, they are original technology and their design, even with design flaws, conveys the history of technology and engineering of the JKPGP and the proposed historic district.

Some of the proposed work involves less important systems or features of the JKPGP. For example, the electrical system is presumed to have changed over time with the installation of pump units 1 to 6 by 1952, and the pump-generating units in 1973, 1983, and 1984 with more changes thereafter. Work to update or replace elements of the electrical system should not adversely affect the JKPGP. Furthermore, the replacement of the electrical transformer and switchgear should meet the Standards and not adversely affect the JKPGP. This equipment is currently installed on the east elevation and roof of the JKPGP Storage Building, which is a secondary elevation viewed at a distance by the public. The siting of the JKPGP relative to SR 155 also minimizes the visual effects of this equipment.

However, Reclamation's plans for the proposed work are not sufficiently detailed to enable precise application of the Standards. Work to adjust and repair penstocks, gates, unit protectors, runners and impellers, circuit breakers, governors, and other equipment should be consistent with the Standards because they likely would not involve wholesale replacement of parts or equipment. The replacement of the pump and pump-generator unit controls, however, may not meet the Standards in all cases. Reclamation is conducting a closer examination of this equipment and the effect of its replacement on the integrity of the building, its operations, and the proposed historic district.

Alternative C – JKPGP Modernization and Left Powerhouse Decoupling

Under Alternative C, Reclamation would carry out the same modernization actions as Alternative B, plus pump units 1 to 6 would be decoupled from the Left Powerhouse. Alternative C would result in an adverse effect to the JKPGP, Grand Coulee Dam, and Left Powerhouse.

The six isophase busses that bring power from the Left Powerhouse to pump units 1 to 6 in the JKPGP would be decommissioned and likely removed, creating an adverse effect. These large tubes with copper conductors are original features designed by Reclamation engineers. They begin at the generators in the Left Powerhouse, extend within a lattice-like steel framework across the face of the Dam, and enter the JKPGP to connect to the pump units (Photograph 3-3). They are significant from both engineering and historical perspectives.

The pumping of irrigation water was an important purpose of the Grand Coulee Dam, and pumping the water up into the Grand Coulee was a key factor in the siting of the Grand Coulee Dam at this location of the Columbia River. The Dam, Left Powerhouse, and the JKPGP were placed together at this particular location because of the need for hydroelectric power for the irrigation pumps. Reclamation engineers chose to power the pumps in the JKPGP from the Left Powerhouse generators and use isophase busses to transmit the power to the pumps instead of using transformers or other solutions. Thus, operation of the JKPGP from the generators of the Left Powerhouse and transmittal via the isophase busses are original technology that represents engineering solutions important to the history of Grand Coulee Dam, Left Powerhouse, and JKPGP and the proposed historic district.

Because of these historical and engineering connections among the Dam, Left Powerhouse, and JKPGP, their integrity of design, materials, workmanship, feeling, and association would be diminished by the decoupling under Alternative C. The integrity of association of the proposed historic district also would be diminished since it would be less able to convey the historic significance of the authorized irrigation purpose of the Grand Coulee Dam.

Photograph 3-3. Photo left - View of the platform, isophase busses, and framework on the face of the Dam. Photo right – View looking down at busses, framework, and stairs from the JKPGP.

The only ground disturbance needed would be for the construction of the new firehouse on a small parcel of 1 to 2 acres. Construction of a new firehouse west of Warehouse 3 in the Industrial Area would not adversely affect Warehouse 3. The firehouse would be no more

than two stories, with a small footprint. The addition of the firehouse would not alter the setting of Warehouse 3 since it is an area of recently constructed facilities with similar light industrial uses. No archeological resources or traditional cultural properties are present, so none would be affected by the firehouse construction.

No archeological resources would be affected by Alternative C because none are present in the project area. Although one traditional fishing site would be within the one-mile radius area (Moreno and Curti 2011), the proposed modernization project will not affect the function and future use of this location as a fishing site.

3.13.3 Mitigation

Alternative A - No Action

If Alternative A is adopted, the appropriate mitigation for the adverse effects on historic properties would be to enter into a Section 106 MOA or PA with the Washington SHPO. Depending on the specifics of the agreement document, the Colville THPO may need to be a party to the agreement. The agreement would likely require extensive documentation of the JKPGP and steps to educate the public. It may include other requirements as well.

Alternative B - JKPGP Modernization (Preferred Alternative)

If Alternative B is adopted, Reclamation would need to enter into a Section 106 PA with the Advisory Council on Historic Preservation (ACHP) and/or the Washington SHPO regarding measures to resolve the adverse effects on the JKPGP. Depending on the specifics of the agreement, the Colville THPO might need to be a party. A PA would be the appropriate type of Section 106 agreement document since some aspects of the modernization project and their effects on the JKPGP are known at this time, while other aspects are unknown because certain components are as yet to be designed or the designs will be refined. Also, the modernization actions would occur over an extended time when some aspects of technology and the needs of the JKPGP may change. A PA would outline mitigation measures for the adverse effects of project components where their adverse effects are known at this time, and would outline a consultation process for incorporating historic preservation considerations in the engineering design for those project components that are not yet fully designed at this time. The agreement would likely incorporate some or all of the following provisions, which would be refined based on consultations with the ACHP and/or the Washington SHPO:

- Reclamation cultural resources professionals and the Washington SHPO would continue to coordinate with project engineers over the life of the project to refine designs to meet the Standards to the extent possible. The PA would include specific consultation milestones for the modernization designs.
- Reclamation would document to Historic American Engineering Record standards the JKPGP including its architecture, equipment, and operations.

- Reclamation would install the additional electrical equipment on the JKPGP on the east elevation and roof of the JKPGP Storage Building and position it to be least visible as possible. The equipment would be painted the same color as the Storage Building to blend with it as much as possible.
- Reclamation would follow the Section 106 coordination procedures for "post-review discoveries" at 36 CFR 800.13 and the "inadvertent discoveries provisions" at 43 CFR 10, which implements the Native American Graves Protection and Repatriation Act (NAGPRA). As per 43 CFR 10, Reclamation would include in all contracts with contractors working on this project explicit directions about steps that they should take in the unlikely event that human remains, burials, funerary objects, or other NAGPRA cultural items are found during construction. In brief, the contractors would be instructed to stop work immediately in the vicinity of the find, take steps to protect the find, and then contact the GCPO archeologist and appropriate law enforcement agencies. No work would resume until the NAGPRA consultation process has been completed.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

To mitigate the adverse effects of Alternative C, Reclamation would enter into a PA with the ACHP and/or the Washington SHPO regarding resolving the adverse effects on the JKPGP, Left Powerhouse, Dam, and proposed Grand Coulee Dam Historic District. The PA would incorporate the following provisions, which would be refined based on consultations with the ACHP and the Washington SHPO:

- Reclamation would follow the recommendations for Alternative B since Alternative B is part of Alternative C.
- Reclamation would decommission and remove the isophase busses in the following manner: remove the copper conductor and retain in place the concrete platform, curved wing walls, and stairs cast into the face of the Dam. Reclamation would consider further the feasibility of leaving the isophase busses tubes and/or lattice-like framework in place.

3.13.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

No cumulative impacts are associated with Alternative B. The modernization actions are limited to the JKPGP and its equipment.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

The proposed decoupling would require the firehouse to be moved to the industrial area but would not result in any significant cumulative impacts.

3.14 Indian Trust Assets

The Secretary of the Interior has defined ―Indian Trust Assets" (ITAs) as ―lands, natural resources, money, or other assets held by the Federal government in trust or that are restricted against alienation for Indian tribes and individual Indians" [Department of the Interior, Secretarial Order No. 3215]. Reclamation usually takes this to mean that ITAs include water rights, lands, minerals, hunting and fishing rights, money, and claims.

3.14.1 Affected Environment

A few of the activities proposed as a part of this project, especially the potential construction of a new firehouse east of the Columbia River, would take place within the exterior boundaries of the Colville Reservation. Furthermore, the Columbia River is adjacent to the proposed project area, and it flows along the edges of both the Colville and Spokane reservations. Therefore, it is appropriate to consider the potential for the project to affect ITAs.

Following the definition provided above, Reclamation finds that there are no ITAs within the area to be affected by the proposed project. All of the proposed construction activities would take place within the ―Reclamation Zone" as defined in the Lake Roosevelt Cooperative Management Agreement of 1990, in which Reclamation has exclusive control over access to both the facilities and project lands adjacent to the dam (LRCMA 1990:6; Section IV.D.1.). The language of this agreement is consistent with the direction of Congress when they authorized construction of Grand Coulee Dam in 1935 (49 Stat. 1028), and amended their authorization in 1940 (54 Stat. 703) and again in 1944 (58 Stat. 813). Congress expressly stated,

> The Secretary of the Interior, in lieu of reserving rights of hunting, fishing, and boating to the Indians in the areas grand under this Act, shall set aside approximately one-quarter of the entire reservoir area for the paramount use of the Indians of the Spokane and Colville Reservations for hunting, fishing, and boating purposes, which rights shall be subject only to such reasonable regulations as the Secretary may prescribe for the protection and conservation of fish and wildlife: Provided, That the exercise of Indians' rights shall not interfere with project operations (18 U.S.C. 835; underline added).

The JKPGP Modernization Project takes place entirely outside of the ―Indian Zone" (also known as the ―Reservation Zone"), and does not have the potential to affect ITAs. The lands to be affected by the project are Federal lands withdrawn or acquired by the U.S. for CBP purposes, and they are not held in trust for either the Colville or Spokane tribes or for individual Indians. No hunting or fishing rights exist inside the Reclamation Zone.

Water rights are another potential form of ITA. Both tribes have asserted claims for water rights in the waters that border their reservations (Columbia River Initiative Agreement in

Principle between the State of Washington and the CCT, January 4, 2005; Letter dated Jan. 31, 2012, from Gregory Abrahamson, Chairman, Spokane Tribe Business Council, to Keith McGowan, Environmental Protection Specialist, U.S. Bureau of Reclamation). This project does would not directly affect either the Colville or Spokane tribes' access to waters of the reservations, and the proposed project would not diminish the availability of water to either tribe. Therefore, the project would not affect water rights.

3.14.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The purpose of this discussion is to determine if implementation of the proposed action would appreciably impact the current ITAs that may be in the project area. This is a qualitative analysis which identifies the affected environment and perceived variables subsequent to the implementation of the proposed action. The indicator variable used in this analysis is the potential for the project, during either construction or operation, to affect access to ITAs or to reduce their value.

Alternative A – No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. There would be no effect to ITAs.

Alternative B -JKPGP Modernization (Preferred Alternative)

Alternative B would not result in any significant negative effects on ITAs. The project would not involve actions on trust lands, and it would not reduce the ability of Indians to hunt, fish, and boat in the Colville or Spokane reservations or associated trust lands. The project would not affect the amount of water available in the Columbia River, and therefore would not affect any water rights that might be claimed by the Colville or Spokane tribes.

Alternative C -JKPGP Modernization and Left Powerhouse Decoupling

Environmental consequences for Alternative C would be the same as Alternative B.

3.14.3 Mitigation

There was no mitigation identified for any of the alternatives.

3.14.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

This project will not contribute to cumulative effects to ITAs.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

3.15 Indian Sacred Sites

3.15.1 Affected Environment

Executive Order 13007, which was signed by President Clinton on May 24, 1996, defines ―sacred site" as:

> any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site [E.O. 13007, Section 1 (b) (iii)].

Members of the CCT often recognize that, in general, many aspects of the natural environment should be considered sacred, including water, land, air, and various plant and animal species. In its Cultural Resources Management Plan (CCT 2006), the CCT grouped ―sacred sites" with traditional cultural properties and properties of traditional religious and cultural importance to tribes, both of which are addressed in the Cultural Resources section above.

The project area has undergone extensive construction-related disturbance (see the Cultural Resources section above), and the physical integrity of any sacred sites in this area would have already been severely compromised. Furthermore, as a part of its security procedures, Reclamation has been obligated to curtail access to lands within the project area.

At this point in time, the CCT have not specifically identified any sacred sites within the immediate vicinity of the proposed project area. A number of locations with traditional Indian place names and traditional cultural value are in the general area of Grand Coulee Dam, but none of these have been specifically identified as having established religious significance or ceremonial use, and they are all well outside of the area of direct effects.

3.15.2 Environmental Consequences

Impact Indicator/Methods for Evaluating Impacts

The purpose of this discussion is to determine if implementation of the proposed action would appreciably impact access to Native American sacred sites that may be in the project area. This is a qualitative analysis which identifies the affected environment and perceived variables subsequent to the implementation of the proposed action. The indicator variable used in this analysis is the potential for the project, during either construction or operation, to affect access to sacred sites.

Alternative A - No Action

Reclamation would continue operating the JKPGP with the current maintenance and production schedules. Operations to deliver irrigation water, generate electricity, and support balancing power reserves would continue according to existing protocols. There would be no effect to Indian Sacred Sites.

Alternative B - JKPGP Modernization (Preferred Alternative)

Implementation of Alternative B would not result in a reduction of access to sacred sites.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Environmental consequences for Alternative C would be the same as Alternative B.

3.15.3 Mitigation

None identified for any of the alternatives.

3.15.4 Cumulative Impacts

Alternative B - JKPGP Modernization (Preferred Alternative)

This project would not result in any cumulative impacts when evaluated in conjunction with other projects being done at Grand Coulee Dam.

Alternative C - JKPGP Modernization and Left Powerhouse Decoupling

Cumulative impacts for Alternative C would be the same as Alternative B.

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Chapter 4 CONSULTATION AND COORDINATION

4.1 Agency Consultations

National Historic Preservation Act (NHPA)

The NHPA was enacted in 1966 and requires Federal agencies to consider project-related impacts to historic properties, which includes prehistoric and historic-period archeological sites, traditional cultural properties, and elements of the built environment. The process for implementing the NHPA is defined in Federal regulations (30 CFR 800) and includes consultation with the SHPO, THPO, and ACHP about Federal findings regarding project effects.

Because BPA was an important Reclamation partner in this project, and Reclamation and BPA entered into an agreement that made Reclamation the Lead Agency for NHPA compliance in June 2011. Reclamation then consulted with the Washington SHPO and Colville THPO regarding the potential effects of this project, as it had the potential to adversely affect historic properties in the jurisdiction of both offices. Reclamation's initial consultation with the SHPO and THPO in July 2011 requested their concurrence with our determination of the Area of Potential Effects and level of effort to be used in identifying historic properties, and both agencies concurred later in the same month. In December 2011, after executing the identification plans developed earlier and writing reports that met the documentation requirements of 36 CFR 800.11(e), Reclamation consulted again with the SHPO and THPO regarding our Finding of Adverse Effects. The THPO concurred with our finding near the end of December 2011, and the SHPO concurred shortly thereafter in January 2012.

In keeping with the regulations specified at 36 CFR 800.6, Reclamation notified the ACHP of our Finding of Adverse Effects and invited them to participate in the resolution of those effects. The ACHP exercised its discretion to refrain from participating, and informed Reclamation in February 2012 that the agency should work with the SHPO and THPO to resolve the adverse effects.

Reclamation sent a draft PA to both the SHPO and THPO in early February 2012, and both agencies have agreed, in principle, to sign the agreement. The PA is currently awaiting approval by the CCT. After receiving their approval, the PA will be provided to the SHPO for signature. This will conclude consultation under the NHPA.

4.2 4.2 Consultation and Coordination with Tribal Governments

A scoping letter was sent to the CCT and the Spokane Tribe of Indians to seek their involvement and input and address any questions or concerns related to the proposed actions. No indication was received from the tribes that any comments or concerns existed or that further consultation was warranted.

After sending out the Draft EA, Reclamation received comments from the Spokane Tribe of Indians, many of which focused on the discussion of Indian Trust Assets. The Spokane Tribe of Indians did not request any additional consultation. Changes were made in the EA to address the tribe's comments.

4.3 Public Involvement

As part of the NEPA process, Reclamation submitted a news release to local radio, television, and newspapers and a scoping letter was sent to 40 Federal and State agencies, Tribal Governments, and local city and county officials soliciting comments, concerns, and issues related to the Proposed Action. A list of the recipients and a copy of the scoping letter and news release are included in Appendix A. Three responses to the news release and scoping letter were received during scoping comment period. The scoping comments are included in Appendix B.

Reclamation issued a Draft EA for public comment on December 9, 2011. The Draft EA was distributed to local, State, and Federal agencies, Tribes, land owners, and interested parties for public comment. Comment letters were submitted by the Spokane Tribe of Indians, Grand Coulee Dam School District, Washington State Senator Linda Evans Parlette, Congresswoman Cathy McMorris Rodgers, and one private citizen.

The comment letters are included as an attachment to this FONSI and Final EA as Appendix C. Where appropriate, the Final EA has been revised to reflect comment concerns.

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Appendices

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Appendix A

Distribution List

Scoping Letter

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Distribution List for Scoping Letter for JKPGP Modernization Project	
Mayor Gayland L. "Quincy" Snow Town of Coulee Dam 300 Lincoln Ave. Coulee Dam, WA 99116-1434	Mayor Tammara Byers City of Grand Coulee 306 Midway Ave. P.O. Box 180 Grand Coulee, WA 99133
Mayor Gerald Sands City of Electric City 10 Western Ave. P.O. Box 130 Electric City, WA 99123	Mayor Mary Jo Carey Town of Elmer City 505 Seaton Ave. P.O. Box 179 Elmer City, WA 99124
Commissioner Carolann Swartz, Chair Grant County Commissioners 35 C St. NW P.O. Box 37 Ephrata, WA 98823	Commissioner Andrew Lampe, Chair Okanogan County Commissioners 149 3rd N P.O. Box 72 Okanogan, WA 98840
Commissioner Dale Snyder, Chair Douglas County Commissioners 213 S. Rainier P.O. Box 747 Waterville, WA 98858-0747	Coulee Corridor Consortium President P.O. Box 421 Coulee City, WA 99115
Lake Roosevelt Forum Andy Dunau, Director 2206 S. Sherman Spokane, WA 99203	Grand Coulee Dam Area Chamber of Commerce Scott Hunter, President 306 Midway Grand Coulee, WA 99133
Center for Environmental Law and Policy 25 W. Main, Suite 234 Spokane, WA 99201	Lake Roosevelt National Recreation Area Debbie Bird, Superintendent 1008 Crest Drive Coulee Dam, WA 99116
NOAA Attention: Barry Thorn 7600 Sand Point Way NE Seattle, WA 98115-0070	Colonel Anthony Write U.S. Army Corp of Engineers P.O. Box 3755 Seattle, WA 98124-3755
Washington State Department of Ecology Brian Farmer 4601 N. Monroe St. Spokane, WA 99205	Commissioner Dennis Bly, Chair Lincoln County Commissioners P.O. Box 28 Davenport, WA 99122
Cathy McMorris Rodgers United States House of Representatives 2421 Rayburn House Office Building Washington, D.C. 20515 OR 555 South Main Street Colville, WA 99114	Mr. Michael O. Finley, Chairman Colville Confederated Tribes P.O. Box 150 Nespelem WA 99155

Distribution List for Scoping Letter for JKPGP Modernization Project	
Mr. Greg Abrahamson, Chairman Spokane Tribe of Indians P.O. Box 100 Wellpinit, WA 99040	Senator Patty Murray Contact by email: JudyOlson@murray.senate.gov OR United States Senate 448 Russell Senate Office Building Washington, D.C. 20510 OR 10 North Post Street, Suite 600 Spokane, WA 99201
Commissioner Brad Miller, Chair Ferry County Commissioners 290 E. Tessie Ave. Republic, WA 99166	Star Newspaper star@grandcoulee.com
Senator Maria Cantwell United States Senate 311 Hart Senate Office Building Washington, DC 20510 OR U.S. Federal Courthouse W. 920 Riverside, Suite 697 Spokane, WA 99201	Spokesman Review Garyg@spokesman.com
Wilbur Register Wilburregister@ centurytel.net	Tribal Tribune Editor.tribune@colvilletribes.com
Wenatchee World hemphill@wenatcheeworld.com	Yakima Nation Review P.O. Box 310 Toppenish, WA 98948-0310
Rawhide Press P.O. Box 100 Wellpinit, WA 99040	Craig Simpson, Manager East Columbia Basin Irrigation District PO Box E Othello, WA 99344
Dave Solem, Manager South Columbia Basin Irrigation District PO Box 1006 Pasco, WA 99301-1006	Grand Coulee Project Hydroelectric Authority 32 C Street NW Ephrata, WA 98823
Darvin Fales, Manager Quincy-Columbia Basin Irrigation District PO Box 188 Quincy, WA 98848	Donna Smith Acting Superintendent Spokane Agency Bureau of Indian Affairs P.O. Box 389 Wellpinit, WA 99040-0389

Distribution List for Scoping Letter for JKPGP Modernization Project	
Debra Wulff Superintendent Colville Agency Bureau of Indian Affairs P.O. Box 111 Nespelem, WA 99155-0111	Tri-County Economic Development District 986 S. Main St., #A Colville, WA 99114-2531
Doc Hastings United States House of Representatives 1203 Longworth House Office Building Washington, DC 20515 OR 2715 St. Andrews Loop, Suite D Pasco, WA 99301	Margie Hall, Executive Director Lincoln County Economic Development Council P.O. Box 1304 Davenport, WA 99122
Economic Alliance 320 Omak Avenue Omak, WA 98841	Grant County Economic Development Council 6594 Patton Blvd. NE Moses Lake, WA 98837

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Grand Coulee Power Office
P.O. Box 620
Grand Coulee, WA 99133-0620

IN REPLY REFER TO:

GCPO-1000
ENV-1.10

JUL - 6 2011

Interested Parties (See Enclosed List)

Subject: Public Scoping for the Environmental Assessment for the John W. Keys, III Pump-Generating Plant Modernization Project

Dear Ladies and Gentlemen,

The Bureau of Reclamation is proposing work associated with the John W. Keys, III Pump-Generating Plant and surrounding area and will prepare an Environmental Assessment (EA) pursuant to the National Environmental Policy Act for these actions. The beginning of the process is to inform you of these actions and ask for you to inform us of any concerns that you may have regarding the proposal or comments on the scope of studies to be prepared for the EA.

A description of the proposal is contained in the attached document. I invite you to send your written comments on this proposal to Keith McGowan, Environmental Protection Specialist, Bureau of Reclamation, Columbia-Cascades Area Office, 1917 Marsh Road, CCA-1607, Yakima, WA, 98901-2058. Comments must be received by Friday, August 5, 2011 to ensure consideration during preparation of the EA. If you have any questions concerning the proposal or the NEPA process, contact Keith McGowan at 509-575-5848 ext. 238 or kmcgowan@usbr.gov.

Sincerely,

Mark C. Jenson
Power Manager

Enclosure

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

JOHN W. KEYS III PUMP-GENERATING PLANT MODERNIZATION

ENVIRONMENTAL ASSESSMENT (EA)

Grand Coulee Dam

The Bureau of Reclamation (Reclamation) is preparing an Environmental Assessment for the proposed John W. Keys III Pump-Generating Plant and is requesting public comment and agency input to help identify issues to be addressed in the EA. Information obtained during the scoping period (July 6 – August 5, 2011) will help in developing the EA. A draft EA is scheduled to be available for public review by December of 2011. Comments on the draft will be accepted during this time. The final EA is scheduled for completion in March of 2012.

PURPOSE AND NEED

The purpose of the John W. Keys III Pump-Generating Plant (JKPGP) modernization project is to replace and/or upgrade existing components of the plant that are exhibiting substantial age-related wear and design deficiencies and to increase JKPGP's operational reliability and flexibility.

Reclamation is proposing to overhaul and modernize the JKPGP's six pumps and six pump-generating units at Grand Coulee Dam. Many of the plant's principal components are being operated far beyond their intended service life, or are being operated below their original design capacity due to physical limitations. In particular, the twelve units that comprise the JKPGP show problems stemming from wear and design that require more frequent maintenance, more challenging repairs, and longer down times. Also, the existing direct coupling of the six JKPGP pump units to individual generating units in the Grand Coulee left powerhouse has created severe constraints and limitations on system flexibility, including a rigid and unwieldy start/stop sequence for the pumps. As a result, these and other components contribute to growing safety related concerns at the plant, increase the plant operational costs, create limitations on routine day-to-day plant operations, impose risks to sustained long-term operation of the plant, and threaten Reclamation's contractual obligations to provide on-demand delivery of irrigation water and to accommodate pumped storage at Banks Lake for balancing reserves and electrical load shaping[1].

In summary, the proposed JKPGP modernization is needed to ensure efficient plant operations and to provide reliable irrigation delivery and adequate flexibility to continue to balance power reserves and load shaping. The potential loss of public revenue and adverse effects on the regional economy

[1] Balancing Reserves refers to responding to electrical system demands by either inceasing or decreasing generation or using the excess electrical power to pump water for irrigation or storage.
Load Shaping refers to the ability to store excess electrical power during periods of low demand by pumping water up into Bakes Lake and releasing this stored water later for generation during times of increased demand.

from interrupted irrigation delivery and public power generation would be substantial and unacceptable.

PROPOSED ALTERNATIVES

Reclamation is currently investigating the alternatives identified below.

- **No Action**
  Under the No Action alternative Reclamation would continue operating the John W. Keys III Pump-Generating Plant's (JKPGP) six pumps and six pump-generating units with no system improvements. Operations to deliver irrigation water, generate electricity, and support balancing of power reserves would continue according to existing protocols. Reclamation would continue maintenance and operation of the JKPGP pumps (P1 – P6) and pump-generating units (P/G7 - P/G12) as agreed to in current agreements with irrigators and Bonneville Power Administration (BPA). The existing maintenance schedule would be followed with allowances for emergency repairs or replacements.

- **John W. Keys III Pump-Generating Plant Modernization**
  Under this alternative, Reclamation would overhaul and modernize the twelve JKPGP pump and pump-generating units. The overhaul would include work on the unit controls, transformers, circuit breakers, and the fire protection equipment. The main portion of the overhaul work would be completed within the confines of the JKPGP. The units have begun to show age-related component wear resulting in reduced reliability and increasing frequency of repair outages and durations. The modernization program would include inspecting and refurbishing or replacing components. Reclamation proposes to use 1.7 acres near the southwest corner of the Industrial Area as a contractor staging area for the modernization project. The proposed modernization and upgrade work would improve the JKPGP's flexibility to provide water for irrigation to the Columbia Basin Project and to support load shaping and balancing of reserves.

- **John W. Keys III Pump-Generating Plant Modernization with Left Powerhouse Decoupling**
  Under this alternative, Reclamation would overhaul and modernize the JKPGP pump and pump-generating units as described above. The same modernization and overhaul work would be accomplished to return the twelve units to good working order. Along with the modernization work, the six pump units would be decoupled from the Grand Coulee left powerhouse and would be tied directly to the transmission grid. Decoupling would require an additional transformer and another 230 kV line from the JKPGP to the 230 kV spreader yard. The new 230 kV transmission line would either use the existing towers or replacement towers that would be installed in the same locations as the existing towers. The decoupling of the JKPGP from the left powerhouse would allow Reclamation to decommission the isolated-phase bus and alleviate the ongoing maintenance and related safety issues with the bus.

YOUR FEEDBACK REQUESTED

Please submit your comments using the enclosed comment form and return it to the contact listed below by August 5, 2011 to ensure consideration during preparation of the EA.

FOR MORE INFORMATION

For more information about the project, please contact:

Keith McGowan, Environmental Protection Specialist
Bureau of Reclamation
Columbia-Cascades Area Office
1917 Marsh Road, CCA-1607
Yakima, WA 98901-2058
509-575-5848 ext. 238 (office)
509-454-5650 (fax)
kmcgowan@usbr.gov

Grand Coulee Power Office
Grand Coulee, Washington

Media Contact: John Redding (208) 378-5212
jredding@usbr.gov

Lynne Brougher (509) 633-9503
lbrougher@usbr.gov
TTY/TDD: 711

For Release: July 1, 2011

Reclamation Prepares EA on Proposed John W. Keys, III Pump-Generating Plant Modernization

The Bureau of Reclamation s requesting public comment to help identify issues to be addressed in an Environmental Assessment (EA) for the proposed John W. Keys, III Pump-Generating Plant Modernization Project. The pump-generating plant is located at Grand Coulee Dam on the Columbia River about 90 miles west of Spokane, Washington. Information obtained during the scoping period from July 6 - August 5, 2011, will help bring focus to the concerns, issues, and analyses that should be included in the draft EA which is scheduled to be issued by December of 2011. Completion of the final EA is anticipated in March 2012.

The John W. Keys, III Pump-Generating Plant provides irrigation water to about 670,000 acres of farmland in the Columbia Basin Project. It has a hydroelectric generating capacity of 314 megawatts and has been in operation since the early 1950s. The plant contains 6 pumps and 6 pump-generators.

The purpose of the modernization project is to replace and increase the plant's operational reliability by replacing and repairing components that are exhibiting substantial age-related wear. This proposed modernization, if approved, will be jointly funded by the Bonneville Power Administration and the Columbia Basin Project irrigation districts to ensure efficient plant operations to provide reliable irrigation delivery and hydroelectric power.

The three proposed alternatives include:

- **No Action**: Reclamation would continue operating the John W. Keys, III Pump-Generating Plant's pump and pump-generating units with no system improvements.

- **Plant Modernization**: Reclamation would overhaul and modernize the pump and pump-generating units. This would include work on the unit controls, transformers, circuit breakers, and the fire protection equipment.

(More)

- **Plant Modernization with Left Powerhouse Decoupling (Disconnecting)**: Reclamation would overhaul and modernize the pump and pump-generating units. The pumps will be disconnected, also known as decoupling, from the Grand Coulee left powerhouse and connected to the Grand Coulee 230 kV switchyard. This would require an additional transformer and installation of a new 230 kV transmission line to connect the pumps to the switchyard.

A Draft EA is scheduled to be available for public review by December of 2011. The Project Summary can be found at www.usbr.gov/pn/programs/ea/wash/jkpgp/index.html. Written comments can be sent to Keith McGowan, Environmental Protection Specialist, Bureau of Reclamation, Columbia Cascades Area Office, 1917 Marsh Road, (CCA-1607), Yakima, WA 98901-2058 or emailed to kmcgowan@usbr.gov.

###

Reclamation is the largest wholesale water supplier and the second largest producer of hydroelectric power in the United States, with operations and facilities in the 17 Western States. Its facilities also provide substantial flood control, recreation, and fish and wildlife benefits. Visit our website at www.usbr.gov.

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Appendix B

Comments from Scoping Period

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From:	Greg B
To:	McGowan, Keith R
Subject:	John W. Keys III Pump-Generating Plant Modernization Scoping Comment.....
Date:	Sunday, July 31, 2011 10:01:52 AM

July 31, 2011

I have only one comment to provide for the scoping and comments for the John W. Keys III Pump-Generating Plant Modernization program. I know this is not a concept designed by myself and has been suggested by many others but it will be essential to provide in the upgrade of PG Units the ability to utilize the ever increasing wind generated energy. This would probably require tying the units into the main units of the power plants to allow a direct utilization of the power grid. As I have said, this concept is not entirely of my own and I know that folks in the power industry are looking into this concept. This utilization of wind energy to pump water into Banks Lake and then reversing the flow and generating when wind power is limited. You all understand this concept so I won't belabor the idea. Just please strongly investigate this idea and see if it is feasible.

Thank you,

Greg Behrens
greg1950@hotmail.com

Superintendent: Dr. Dennis Carlson
Business Manager: ESD 171

Board Members: Joette Barry,
Susan Chaffee, Nita Haag,
Carla Marconi, Kenneth Stanger

Grand Coulee Dam School District

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July 21, 2011

Keith McGowan
Environmental Protection Specialist
Bureau of Reclamation, Columbia Cascades Area Office
1917 Marsh Road (CCA-1607)
Yakima, WA 98901-2058

Mr. McGowan:

I am writing you as a result of an article in the Grand Coulee *The Star* newspaper that noted you are seeking input concerning the modernization of the pump-generating plant at Grand Coulee Dam.

I am superintendent of the Grand Coulee Dam School District. and believe it is appropriate for the Bureau to consider the impacts that all projects at the Grand Coulee Dam have on the school district. Increased numbers of workers on temporary or long-term projects usually result in an increase in the number of students that will be attending our schools. Currently, the school district expends approximately $12,600 per student per year while receiving only $7,900 per student per year from all state sources to support our activities on our students' behalf. The remaining dollars come from targeted federal assistance grants, local property taxes or impact aid—few, if any, of which are increased when students arrive in our schools as a result of a project such as the one proposed.

Without knowing the exact plans and timelines, I need to express a concern that the state highway that runs right past the pump-generating plant is the only access that our district has for transporting students between our school sites or for moving our school buses from their storage area to the elementary and middle schools in case of an emergency.

I would welcome the opportunity to visit with you in relation to these concerns and how the Bureau of Reclamation can help mitigate the impacts that result from the proposed project.

Please feel free to contact me if you need any additional information in relation to these concerns.

Sincerely,

Dennis L. Carlson

Dennis L. Carlson, Ed.D.

Date: **August 5, 2011**

To: **Keith McGowan**
Environmental Protection Specialist
U.S. Bureau of Reclamation
kmcgowan@usbr.gov

From: **Charles Pace, Ph.D.**

Re: **Scoping for JWK, III Pump-Generating Plant Modernization**

This memo is submitted in response to the request for public comment by the U.S. Department of the Interior's Bureau of Reclamation, Pacific Northwest Region ("BOR" or "Bureau"), to help identify issues that must be addressed in the BOR's draft environmental assessment for modernization of the John W. Keyes III Pump-Generating Plant at Grand Coulee.[1]

In addition to replacing and/or upgrading aging components and allowing BOR to meet its contractual obligations to deliver water for irrigators, the modernization project will contribute to shaping electrical loads and provide balancing reserves for variable energy resources, which will increase the federal Columbia River power and transmission systems' operating flexibility, as well as support integration of existing and planned wind-generating assets in the Pacific Northwest by the Bonneville Power Administration ("BPA" or "Bonneville").[2] Providing support for BPA's integration of wind-generated power is clearly one of the main reasons—perhaps even the dominant reason—for modernizing the Pump-Generating plant at Grand Coulee at this time.

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[1] *See* Bureau of Reclamation Pacific Northwest Region, *John W. Keys III Pump-Generating Plant Modernization Scoping*, available online at http://www.usbr.gov/pn/programs/ea/wash/jkpgp/index.html.

[2] *Id.*

For example, in Slide #2 of his February 24, 2011, PowerPoint presentation to the Northwest Hydroelectric Association members meeting in Portland, Oregon, Mr. Wayne Todd, an employee at Bonneville Power Administration, noted "Wind Power is Growing Fast!!!" and, in the first bullet point on Slide #3, quoted a letter dated July 10, 2009, from the Honorable Steven Chu, Secretary of the U.S. Department of Energy, to governors of the four states in the Pacific Northwest as follows:

> [T]he Administration places a priority on improving the Nation's capabilities to integrate renewable resources into its electricity supply. I support the full exploration of pumped storage potential in the context of providing necessary intermittent renewable integration services. Pumped storage has unique potential in the Pacific Northwest where a higher percentage of wind generation has already been integrated into the region's transmission system than anywhere else in the nation.[3]

According to Mr. Todd, Bonneville's draft resource program views pumped storage as an asset that "could provide BPA with a unique opportunity to return flexibility to the Federal hydro system."[4] His presentation leaves little room for doubt that pumped storage at Banks Lake figures very prominently in Bonneville's overall plan.[5]

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[3]Wayne Todd, *Bonneville Power Administration – Pumped Storage Evaluation* (Feb. 24, 2011), Slide #3.

[4]*Id*.

[5]*Id*. S*ee also*: Slide #6 (Banks Lake pumped storage evaluation and improvements), Slide #7 (equipment modernization and upgrades at Keys Pump-Generating Plant), Slide #8 (funding agreement signed by BPA and Reclamation on June 15, 2010 for evaluation of Keys Pump-Generating Plant modernization), Slide #9 (Pump Generating-Plant original installation, 1973 and 1983-84 upgrades, and current capacity), and Slide # 10 (Keys Pump-Generating Plant assessment). In addition to Banks Lake,

Note that Mr. Todd and another BPA employee, Mr. Mark Jones, made essentially the same presentation at the April 12-13, 2011, meeting of the Northwest Power and Conservation Council at Wenatchee, Washington.[6] In a memorandum to Council members submitted in preparation for the April 2011 meeting, Terry Morlan, Power Planning Division Director for the Council, wrote:

> In the Pacific Northwest, pumped hydro has not generally been attractive[; however] the attractiveness of pumped storage may be changing in the region … because of increased constraints on the flexibility of hydrosystem operations, increased variable wind generation, and growing capacity needs. * * * As part of the irrigation development in the Columbia plateau, water is pumped from the reservoir behind Grand Coulee dam up to Banks Lake, where it is distributed for irrigation. The facility used for this is the John W. Keys III Pump Generating Plant. Some of the pumps used in this process can be run backwards; that is water can be run from Banks Lake back to the reservoir behind Grand Coulee and the pumps used as electricity generators. This is essentially how a pumped storage project works except that in the case of Banks Lake the system has not typically been operated in that mode.[7]

Emphasis added.

Now, as the Bureau is aware, one reason for preparing an environmental assessment is to assist a federal agency determine whether to prepare an environmental impact statement—and facilitate preparation of a statement if one is necessary—or, alternatively, to issue a finding or no significant impact.[8] But a finding of no significant impact is appropriate only for proposed actions that would

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[6]*See* Terry Morlan, *Memorandum to Council Members re Presentation on Potential for Pumped Storage at Banks and Attachment* (March 25, 2011). http://www.nwcouncil.org/news/2011/04/7.pdf.

[7]*Id.*, 1.

[8]40 C.F.R. §1508.9(a)(1) and (3).

have no significant impact on the human environment.[9] That is not the case here, and a finding of no significant impact for the modernization of the Pump-Generating Plant would not comply with the requirements of the National Environmental Policy Act, as amended ("NEPA").[10]

To the contrary, modernization of the Pump-Generating Plant is a major federal action that, if implemented, will have significant direct, indirect and cumulative impacts, both in the short-term and long-term, on the natural and physical environment, as well as affect the relationship of people to the environment, society as a whole and the economy.[11] Thus, to ensure compliance with section 102(2)(C) of NEPA,[12] the Bureau's environmental assessment should acknowledge the necessity for—and facilitate preparation of—an environmental impact statement for this proposal.

Specifically, the environmental assessment should facilitate preparation of an environmental impact statement that takes a "hard look" at the likely environmental consequences of modernizing the Pump-Generating Plant.[13] For consideration, I believe it would be appropriate to group the impacts the Bureau should consider into three overall categories:

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[9]40 C.F.R. §1508.13.

[10]42 U.S.C. §§4321, *et seq*.

[11]*See* 40 C.F.R. §1508.18 (definition of "major federal action") and §1508.27 (definition of "significant" impacts must be informed by the "context" and "intensity" of the environmental effects).

[12]42 U.S.C. §4332(2)(C).

[13]For example, *see Center for Biological Diversity v. U.S. Department of the Interior*, 623 F.3d 633 (9th Cir. 2010)(federal agencies violate NEPA if they fail to take a "hard look" at environmental consequences).

1) The direct and indirect impacts on the natural and physical environment of Banks Lake, as well as impacts that will occur on the mainstem of the Columbia River both upstream and downstream of the Grand Coulee project.
2) Interrelated impacts that will occur given the additional operating flexibility that will be available with modernization and the role that operation of a modernized Pump-Generating Plant will play in the integration of wind-powered and hydroelectric generating assets throughout the Pacific Northwest.[14]
3) Cumulative effects, which are likely to result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions undertaken by federal agencies and non-federal entities.

And, in anticipation of issuing an environmental impact statement, the effects on the "human environment" of modernizing the Pump-Generating Plant in each of the above categories should be "interpreted comprehensively,"[15] taking into account both the "context" and the "intensity" of the environmental effects that are likely to occur if the Plant is modernized.[16]

Specifically, to comply with NEPA implementing regulations set forth at 40 C.F.R. §1508.27, the Bureau should evaluate the significance of the proposed action in four related contexts:

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[14]While the Bureau of Reclamation is the "lead agency" that will be responsible for preparing an environmental impact statement for this proposal, BOR should work closely with Bonneville as a "cooperating agency" because BPA has jurisdiction and special expertise regarding the contribution that a modernized Pump-Generating Plant will make to the operating flexibility of the Federal Columbia River power and transmission systems and the key role the Plant will play in integrating wind-power and hydroelectric generating assets in the Pacific Northwest and interconnected electric systems serving the western United States. *See* 40 C.F.R. §1508.16 (definition of "lead" agency), §1508.5 (definition of "cooperating" agency) and §1501.6 (duties and responsibilities).

[15]40 C.F.R. §1508.14.

[16]40 C.F.R. §1508.27.

1) The society as a whole, including the priority placed on improving our capabilities to integrate renewable resources into the nation's electricity supply.
2) The affected region, which here encompasses the Pacific Northwest and adjacent areas.
3) The various cultural, social and economic interests that will be affected.
4) The locality of the proposed action, i.e., Banks Lake and the mainstem Columbia River and side channels upstream and downstream from Grand Coulee Dam

And, to be consistent with such NEPA implementing regulations, the Bureau should also evaluate the "intensity" or "severity" of impacts—including the beneficial and adverse effects of modernizing the Pump-Generating Plant to achieve additional flexibility for system operations— taking into account all of the following:

1) The unique characteristics of the area that will be impacted by operations, including but not limited to water quality, fish and wildlife in Banks Lake and wetlands that are proximate thereto.
2) Impacts on gravesites, funerary objects and cultural resources upstream from the Grand Coulee Dam, and Lake Roosevelt shore lands, which are managed by the National Park Service.
3) The degree to which the effects of modernizing and operating the Pump-Generating Plant on the human environment are likely to be controversial, uncertain and/or involve unknown risks.
4) The degree to which the modernizing the Plant establishes a precedent for future operating actions that are likely to have significant effects on the environment or represents a decision in principle with respect to future considerations.
5) Whether modernizing the Pump-Generating Plant is related to other actions with cumulatively significant impacts, including but not limited to other pump-storage facilities that have been proposed and are now pending before the Federal Energy Regulatory Commission.
6) The degree to which modernization and operation of the Pump-Generating Plant may affect or cause losses of or destroy significant scientific, cultural or historical resources.
7) The degree to which modernization of the Plant might benefit and/or adversely affect threatened or endangered species listed pursuant to the

Endangered Species Act of 1973, as amended,[17] including but not limited to any adverse modification or destruction of designated critical habitat for such species.

8) Whether modernizing the Plant to achieve greater operating flexibility could threaten a violation of federal, state and local, or tribal laws imposed to protect the environment.

Thank you for the opportunity to participate in scoping for the project and for your review and consideration of my comments. I look forward to reviewing your environmental assessment when it becomes available.

[17] 16 U.S.C. §§1531 *et seq*.

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Appendix C

Comments and Responses

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Superintendent: Dr. Dennis Carlson
Business Manager: ESD 171

Board Members: Joette Barry,
Susan Chaffee, Ted Piccolo,
Carla Marconi, Kenneth Stanger

Grand Coulee Dam School District

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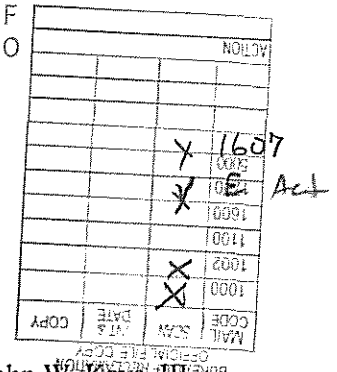

January 24, 2012

Keith McGowan
Environmental Protection Specialist
Bureau of Reclamation, Columbia Cascades Area Office
1917 Marsh Road
Yakima, WA 98901-2058

Mr. McGowan:

I am writing you as a result of my review of the Draft Environmental Assessment for the John W. Keys, III Pump-Generating Plant Modernization. Thank you for sending me a copy of the Draft and this opportunity to clarify the impacts this project will have on the effective and efficient operations of the Grand Coulee Dam School District and our joint efforts to coordinate planning actions.

It is clear we agree that the project will result in an increased number of students attending our schools. The Bureau's response to the school district's concerns notes an increase of nineteen (19) students as a direct result of the project. While that number may or may not be correct, consistent comparison purposes require my use of that number as well.

According to NEPA requirements, the determination of the significance of the impacts on the school district of the proposed pump-generating plant project must be evaluated in two areas. First, the **context** of the district's location, facilities that are available for housing and teaching students, student population that is served, and limitations on the district's ability to fund excess costs of required services. Secondly, the impacts of the project must be considered based on **intensity** which is defined as the degree to which the proposed action would involve one or more of ten (10) listed factors which include effects on public health or safety and cumulative effects of other projects. These cumulative effects include current projects (such as the Third Power Plant modernization project that is running concurrently with the proposed pump-generating plant modernization) and prior projects and actions taken by the Bureau or others.

CONTEXT

Location: The school district is located at the junction of Grant, Douglas and Okanogan Counties in rural, North Central Washington State. According to George A. Shipman, "The Grand Coulee Dam area was sparsely settled before construction began; it is, indeed doubtful, that any incorporated towns would have developed if the dam had not been built". (Shipman, p. 6). In fact, if not for the existence of the Grand Coulee Dam, there is very little reason for any communities to exist in the area.

Facilities: The school district operates three schools that serve nearly 650 students in grades K-12 (A fourth school – Wright Elementary – has been abandoned due to unfit conditions that included safety and health concerns). The buildings were all constructed nearly sixty (60) years ago by the Bureau of Reclamation and turned over to the school district in 1959 under terms of the Coulee Dam Community Act of 1957. The condition of the facilities has been reviewed several times over the past forty (40) years and has been determined to be unfit for the purposes for which they are being used each time. A state-supported design review of the district's facilities in 2010 determined that replacement of the existing facilities and construction of a new, single-site K-12 building along with support facilities is the preferred course of action at this time. The project cost is estimated at slightly over $46 million.

The model used by the State of Washington to construct, modernize, and replace school facilities relies on blending funding from both local and state sources. Local sources for funding can come from unspent state

allocations, voter approved local levies, or voter approved bonds that are based on the district's assessed property valuation. The State has line-itemed $14 million dollars for the construction of new facilities but the remaining costs must be met through other means. The district is unable to even propose a bond that would cover the remaining cost of the needed facility construction due to the abundance of tax exempt state and federally-owned land in the district (23%), the amount of property held in trust by the government for the Colville Confederated Tribes (6%), the amount of tax-advantaged open space (70%), and the legal debt limit placed upon the district.

Student Population: The school district serves students from five counties - Lincoln, Ferry, Okanogan, Grant and Douglas (the same counties identified in the NEPA scoping process as being the impacted area of the project)– along with students from the Nespelem and Keller Elementary School Districts. Student demographics of the district include approximately 55% Native American, 33% White, 11% Hispanic, and 1% Other with 59% qualifying for free or reduced lunch and nearly 1 in 6 qualifying for required Special Education services.

Funding Limitations: The school district has three basic funding sources: federal, state and local. The funds are generated pursuant to the laws and regulations of either the federal or state government with local funds being generated through a voter approved property tax levy, sales of school meals, and donations. Most federal funds are targeted to serve identified needs or certain student populations and are expended according to the governing regulations. Impact Aid – which the district receives based on the number of Native American students that live on federally owned properties - is deposited in the district's general fund to address general operating expenses. Contrary to a prior position taken by the Bureau and communicated by Deputy Commissioner David Murillo to Rep. Cathy McMorris Rodgers, the district receives no Impact Aid funding for students connected to the federally owned Grand Coulee Dam project due to the federal government's ownership of the lands associated with the project prior to the effective date of the Impact Aid legislation.

The state allocation of funds to the district is based on student enrollment as follows:

2011-12 Basic Education Allocation:	$5,442.61/student
Materials, supplies, operating costs allocation (MSOC):	$542.53/student
Total:	$5,985.14/student

*2011-12 State Special Education Allocation:	$5,022.20/student
MSOC:	$542.53/student
Federal Special Education Allocation:	$1,965.02/student
Total:	$7,529.75/student

* The state allocation is determined on a per student basis with a cap of 12.7% of a district's student count being classified as qualifying for Special Education services. Student numbers in excess of the 12.7% allocation cap are paid in full through local funds. 16.7% of GCDSD students currently qualify for Special Education services.

Costs in excess of these amounts are paid through local funds, Impact Aid dollars, and/or student-targeted federal assistance. 2011-12 projected revenues from each of these sources are as follows:

Local dollars:	$2,287.99/student
Impact Aid:	$1,261.03/student
Targeted Federal Assistance:	$1,803.00/student
Total:	$5,352.02/student

Students entering the district as a result of the project will generate no additional local, levy-based dollars; may require Special Education services (the cost of which will depend upon the student's Individual Educational Plan); and may require additional staffing costs based upon the grade level enrollment and applicable labor agreements.

INTENSITY

Public Health or Safety: While the district's facilities may have met the requirements for staff and student health and safety when they were constructed nearly 60 years ago, repeated studies of the district's facilities have shown that they do not provide health, safety or educational space that meets current standards. The district has closed one elementary school site due to environmental concerns with the presence of asbestos and lead based paint, poor indoor air quality, and structural soundness. Each of the remaining three sites has similar issues.

Cumulative Effects (The incremental environmental impact or effect of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time(40 CFR 1508.7)): Impacts on the local school district due to federal actions date to before the construction of the dam was initiated and have continued to the present day.

- **Loss of tax revenues:** The original license for a dam at the current site of the Grand Coulee Dam was granted by the State of Washington under provisions of the Federal Water Power Act on June 10, 1920. The Columbia Basin Commission, an agency of the State of Washington, applied for and, in August 1933, received a preliminary permit from the Federal Power Commission for the water power development of the Grand Coulee site. The project was federalized shortly thereafter, however. The federalization of the site was the basis of a negotiated agreement between the federal government and the Colville Confederated Tribes dealing with the loss of power generation royalties arising from the use of stored water over Tribal lands (Congressional testimony of Peter R. Steenland, August 4, 1994). A similar argument can be made relative to lost tax revenues due the school district had the dam site been developed by a private, non-governmental entity as envisioned by the Columbia Basin Commission.

- **Payment In Lieu of Taxes (PILT) not applicable to GCDSD:** The Department of Interior pays each state PILT dollars based upon the number of acres owned by the Department and the fair market lease value of those acres but does not include the value of facilities or improvements located on those acres unlike privately owned properties (see http://www.doi.gov/pilt/summary.html. The distribution of these dollars is then governed by state law. Washington law requires PILT payments be paid from the state treasury to each county in direct relation to the number of identified acres in each county. Each County Commission then determines the distribution of PILT dollars.

- **Impact Aid:** It has been the position of the Bureau that construction monies should be available to the district through the Impact Aid legislation. Under Section 8002 of the Impact Aid act, Impact Aid funds for both construction and support for federally connected children are only available to districts in which the property was transferred from private to federal ownership after 1939. All the property supporting the construction of the dam and was transferred prior to 1939 thus making the district ineligible for these Impact Aid funds.

- **Coulee Dam Community Act of 1957** provided for the transfer of the Bureau-owned school facilities to the local districts in spite of documentation that "defined the fundamental problem of the Grand Coulee Dam area as an economic one" (Shipman, 1954). Shipman also noted in his 1953 preliminary report that, based on the predicted contraction of population in the area due to the completion of the Grand Coulee Dam construction, the school districts should consider consolidation (pg. 22). While the Bureau transferred ownership of the town's infrastructure to the Town of Coulee Dam in order to provide a continuing stream of revenue, no such provision was made for the school district.

  The school district has, since consolidation in 1970, approached the Department of Interior several times through the Bureau for help in providing safe and functional facilities for the district's students. The Department/Bureau has been nonresponsive even though the Coulee Dam Community Act empowers the Secretary of the Interior to enter into contracts with the municipality (which should include the school district as the district is a legally recognized municipality) that "...will, in the Secretary's judgment, contribute substantially to the efficiency or economy of the operations of the Department of the Interior" (Section 11 (b), P.L. 85-240).

- **Cumulative Bureau Actions Impacting the District:** Since the passage of the Coulee Dam Community Act of 1957, the Bureau has:
  - ✓ Purchased over 200 privately owned parcels with a current assessed valuation in excess of $2 million - in order to construct the Third Powerhouse and stabilize the downstream river banks (1969 – 70);
  - ✓ Constructed the Third Powerhouse (1970 - 74);
  - ✓ Initiated the renovation of the Third Powerhouse project which is a $1 billion dollar, 15 year project (2009 -);
  - ✓ Initiated the Odessa Sub-Area study to expand the acreage to be served by the Columbia Basin Irrigation Project to include the Odessa sub-area (2009 -); and
  - ✓ Are currently scoping the impacts of the renovation of the John W. Keyes Pumping Plant at Grand Coulee Dam (2011).

CONCLUSIONS: There has been, to this point in time, no mitigation for Bureau of Reclamation impacts on the provision of educational services or facilities in the Grand Coulee Dam School District.

Mitigation of Impacts: Due to the Bureau's Third Power House Modernization Project and the JWK Pump-Generating Plant Modernization Project being undertaken concurrently, the significance of the impacts to the district must be considered in the aggregate rather than as individual, separate actions.

The impacts of added students to the district are very dependent upon the number of students, needs of the students, and grade level in which they enroll. While the school district is currently in compliance with provisions of its negotiated labor agreements, one or two additional students in the following areas would require the addition of a teacher (which would be an ongoing cost in excess of state support for one or two individual students) and possible purchase/relocation/siting of portable classrooms. By Bureau estimates, the district could receive fifty (50) new students as a result of the two current projects. Reasonable assumptions would find that the district would be required to take the following actions:

Grade 3: additional teacher salary + benefits = $65,000
Grade 5: additional teacher salary + benefits = $65,000
High school special education teacher: salary + benefits = $65,000

Individual considerations:

Grades K-12: each additional Special needs student approximate net cost = $3,500

Site improvements (portable classroom) = (estimate) $20,000/each

Purchase of portable classroom = (estimate) $125,000/each

Mitigation of Intensity Effects:

K-12 facilities = $46,000,000 less state contribution of $14,000,000 = $32,000,000 in a manner similar to CCT settlement agreement;

Ongoing annual contributions to be determined that will be placed in the district's Capital Facilities Fund for eventual replacement of new facility to compensate for lost tax revenues in a manner similar to CCT settlement agreement.

REFERENCES CITED

Depart of Interior at http://www.doi.gov/pilt/summary.html

Shipman, George A.; The Grand Coulee Dam Area – A Preliminary Report; United States Department of the Interior, Bureau of Reclamation; September 21, 1953.

Shipman, George A. : The Grand Coulee Dam Area: Final Report and Recommendations Regarding the Town of Coulee Dam; United States Department of the Interior, Bureau of Reclamation; 1954.

Steenland, Peter R. at http://www.ccrh.org/comm/river/docs/coltest.htm

I would welcome the opportunity to meet with representatives of the Department of Interior and Bureau of Reclamation to discuss ways we can coordinate the mitigation of the impacts noted above.

Please feel free to contact me if you need any additional information in relation to this matter.

Sincerely,

Dennis L. Carlson

Dennis L. Carlson, Ed.D.

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Response to Grand Coulee Dam School District Comment on the Draft EA for the John W. Keys, III Pump-Generating Plant Modernization dated January 24, 2012

Reclamation's preferred alternatives for the Third Powerplant Overhaul and the John W. Keys III Modernization Project would not alter the existing condition of the local schools through their potential addition of students.

Based on the reduction of 50 students from the school district over the last three years and 100 students over the last five years, Reclamation does not conclude that the possible increase of 50 students over the next 10 years from its projects would result in significant impacts. Funding to the school district through its normal sources would compensate for these additional students.

Reclamation recognizes the school district's challenges for funding new facilities, but Reclamation does not have the authority to provide direct financial support to the school district in this manner. Reclamation understands the value that quality schools add to the community. Reclamation will participate with the school district to pursue funding through alternative sources via a collaborative workgroup.

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From: charles pace
To: McGowan, Keith R
Subject: Comment on Draft EA for JWK III Pump-Generating Plant Modernization
Date: Tuesday, January 31, 2012 4:14:43 PM

Date: January 31, 2012

To: Keith McGowan
Environmental Protection Specialist
Bureau of Reclamation
Columbia-Cascades Area Office
1917 Marsh Road, CCA-1607
Yakima, WA 98901-2058

From: Charles Pace, Ph.D.

Re: Comment on Draft Environmental Assessment for the John W. Keys III Pump-Generating Plant Modernization Project

Thank you for the opportunity to comment on the Draft EA for the JWK III Pump-Generating Plant Modernization Project. This comment incorporates by reference the comment I provided on August 5, 2011, re scoping for the proposed action, which is included in Appendix B of the Draft EA. In particular, my August 5th comments suggested that, as part of its environmental compliance process, the Bureau of Reclamation examine the effects on Banks Lake and the mainstem of the Columbia River of the integration of unprecedented amount of wind-powered generation and the key role that pumped storage using the pump generating plant and Banks Lake will play in system operations, particularly during high-flow conditions. The Draft EA alludes to this aspect of the proposed action. However, the analysis does not indicate that the Bureau has taken the requisite "hard look" at the direct, indirect and cumulative impacts thereof. For consideration, I believe that the Bureau should revise the following sections of the Draft EA, focusing explicitly on the day-to-day impacts on system operations, as well as the implications of greater fluctuations in water levels at Banks Lake, and describe in detail the environmental impacts of the key role an upgraded/modernized pump-generation plant will contribute:

* Chapter 1 - Purpose and Need. Section 1.1 of the discussion of purpose and need should include as part of "Background" a greatly expanded discussion of the key contribution that pumped storage at Banks Lake is anticipated to play in system operations given the need to integrate large amounts of wind generation that has been developed within Bonneville Power Administration's balancing area. Section 1.2 should explicitly address the purpose/need for modernization, including but not limited to the need to provide additional options for Bonneville and the Bureau to address over-generation without unnecessarily paying negative prices and/or curtailing generation by wind-powered assets. The description of the Affected Area in Section 1.3 should be revised to include the impacts on the mainstem Columbia River outside the project area, particularly downstream from Grand Coulee to Bonneville Dam. Finally, the integration of wind-powered generation and the ability of pumped storage to contribute thereto should also be described in Section 1.6.

* Chapter 3 - Affected Environment and Environmental Consequences. After incorporating the integration of wind-powered generation in Chapter 1, the Bureau should analyze in detail how pumped storage at Banks Lake will contribute to system operations, as well as assess potential impacts of this aspect of a modernized pump-generating plant, including a "hard look" at the larger geographical area and the affected environment within that larger geographical area, as well as an hard look at the direct, indirect and cumulative impacts. This will require an significantly expanded discussion of such issues with respect to both geographic area and impacts on natural resources in Sections 3.1 Hydrology, Section 3.2 Water Quality, Section 3.3 Threatened and Endangered Species, and Section 3.4 Fisheries.

Finally, for your consideration, I suggest that a full-blown environmental impact statement--rather than an environmental assessment--is appropriate for this action. Thank you for considering this comment. Please keep me on the mailing list and notify me when the Bureau of Reclamation releases its environmental analysis in final form.

Regards,

Charles Pace, Ph.D.

Response to Charles Pace Comment on the Draft EA for the John W. Keys, III Pump-Generating Plant Modernization dated January 31, 2012 – transmitted by email

Reclamation acknowledges that wind-powered generation has been expanding rapidly in the Pacific Northwest and that from time to time a portion of the load shaping and balancing accomplished through the JKPGP and Banks Lake reservoir serves wind generation. However, the load shaping and balancing capabilities of these facilities are essentially independent of the energy source.

We believe the purpose and need for the proposed action are adequately explained and are accurate as stated in the EA. Further, the discussion and evaluation of the JKPGP's accommodation of pumped storage are commensurate with the anticipated role that pumped storage and wind generation play in the proposed action. The proposed modernization would enhance operational efficiency, reliability, flexibility, and safety for delivery of irrigation water, load shaping, and balancing of power reserves. These are uses that the JKPGP has served for 40 years or more. The alternatives examined in this EA do not include substantial changes in existing operations of either the JKPGP or Banks Lake reservoir - the original and foremost purpose of these facilities remains reliable delivery of irrigation water to the Columbia Basin Project.

The EA specifically acknowledges the relationship of wind-powered generation with the pumped storage capabilities of the JKPGP and Banks Lake in Sections 2.3 and 2.4. The potential effects of the proposed modernization and fluctuations in reservoir levels are identified and examined in Sections 3.1, 3.2, 3.3, 3.4, 3.8, and 3.9, among others. The affected area identified in the EA does not extend to the Columbia River downstream of Grand Coulee Dam because the proposed action has no potential for significant adverse effects to the Columbia River or its operation.

As discussed in the Finding of No Significant Impact, the EA has examined the potential effects of the proposed action and alternatives in detail and has demonstrated that the proposal will not have a significant impact on the environment. Thus, preparation of an Environmental Impact Statement is not warranted.

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Spokane Tribe of Indians

P.O. Box 100 • Wellpinit, WA 99040 • (509) 458-6500

January 31, 2012

Keith McGowan
Environmental Protection Specialist
U.S. Bureau of Reclamation
1917 March Rd.
Yakima, WA 98901-2058

Subject: Spokane Tribe's Comment on Draft Environmental Assessment for John W. Keys, III Pump-Generating Plant Modernization (Sent via email: kmcgowan@usbr.gov and USPS first class)

Dear Mr. McGowan:

On the behalf of the Spokane Tribe of Indians ("Tribe"), please accept these comments on the Draft Environmental Assessment for John W. Keys, III Pump-Generating Plant Modernization ("EA"). At this time, the Tribe does not oppose the project as described, but has significant concerns about the NEPA analysis utilized and the Agency's description of Indian Trust Assets. As a general rule the Tribe can support the improvement of technology for efficiency purposes. However, if such improvements are being made to increase the quantity of water removed from Lake Roosevelt for irrigation, the Tribe opposes these improvements for that purpose.

Background

The Tribe's Reservation was established in 1877, after the Tribe was removed by force from its domain. *Northern Pac. Ry. Co. v. Wismer*, 246 US 283, 288 (1918). The Reservation's southern boundary is set to the south bank of the Spokane River and the western boundary is set to the western bank of the Columbia River. The boundaries were set in this fashion to protect the Tribe's subsistence and cultural uses of the Rivers. At that time, the Tribe's major food source was anadromous fish caught in the Spokane and Columbia Rivers. For many decades now, the Tribe's subsistence uses of the Rivers have been thwarted by dams, upstream pollution, raised water temperatures, and, during certain times of the year, portions of the Rivers are uninhabitable for aquatic life due to depressed oxygen levels and high levels of total dissolved gas.

The first actions to harm irreparably the Tribe's fishery and water resources were the construction of Nine Mile Falls, Long Lake, and Little Falls Dams in the early 1900s. Little Falls Dam inundated portions of the Tribe's land and all the dams blocked fish migrating upstream. Unfortunately, these were just the first blows to the Tribe's anadromous fish based existence. The catastrophic blow came in 1933 when the construction of the Grand Coulee Dam began and no plans for fish passage were made. Thousands of acres of the Tribe's Reservation were flooded. The dam not only blocked the Tribe's major food source completely, it destroyed homes, land and inundated important burial and cultural sites.[1] To add to this destruction and harm, the Tribe has never been fairly or properly compensated for this taking, nor have the continued past and present negative effects of the Grand Coulee Dam been fully mitigated.[2]

Regardless of the above injustices, the Tribe strives and will continue to strive to develop a self-sustaining fishery that thrives in clean and abundant waters. Additionally, the Tribe will continue to develop and manage its terrestrial resources in a way that provides its Tribal members with land animal food sources to replace temporarily their fish based existence until that future time when anadromous fish return to the Tribe's rivers and lands. Finally, the Tribe will robustly defend and protect its cultural resources to keep its connection to the past.

Specific Comments

Cumulative Impacts

The Ninth Circuit Court of Appeals clearly requires the following of EAs. "NEPA requires that where 'several actions have a cumulative ... environmental effect, this consequence must be considered in an EIS.' " *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1378 (9th Cir.1998) (quoting *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312 (9th Cir.1990)); *see* 40 C.F.R. § 1508.25(c)(3). The Court also requires that an EA fully address cumulative environmental effects or "cumulative impacts." *See Kern v. BLM*, 284 F.3d 1062, 1076 (9th Cir. 2002) ("Given that so many more EAs are prepared than EISs, *adequate consideration of cumulative effects requires that EAs address them fully.*")[3] A "cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.... Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7.

On page 23 of the EA it states, "The Study's [Odessa Subarea Special Study] Final EIS has not been completed, thus this proposal does not meet the test for being a reasonably foreseeable

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[1] *See Generally* McKay, Kathryn; Renk, Nancy, *Currents and Undercurrents: An Administrative History of Lake Roosevelt National Recreation Area*, 34-38 (2002)(*available at* http://www.eric.ed.gov/PDFS/ED476001.pdf (last visited January 31, 2012).

[2] *Id* at 96.

[3] *quoting* Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* 4 (Jan.1997), *also available at* http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm (*last visited* January 31, 2012) (emphasis added).

future action subject to analysis of cumulative effects under NEPA." This statement if legally correct would allow an agency to delay the release of a final EIS for the sole purpose of avoiding the cumulative effects analysis, and the Tribe strongly objects to this activity. The Odessa Subarea Special Study Draft EIS was published last year and comments were received up until January 2011. The Final EIS has not been completed because of the Agency's delay and its failure to adequately address the Odessa Special Study more thoroughly within this EA is objectionable. Furtthermore, this EA addresses a project that is likely necessary in order for the Bureau to implement the larger Odessa project. As stated in its previous comments the Tribe objects to the Odessa project and hereby incorporates them in their entirety by reference for the record in this EA.

Indian Trust Assets

On page 96 of the EA, the Agency misconstrues the nature of the Tribes' rights and interests in the waters of the Columbia River and Lake Roosevelt. The EA states, "Congress also expressly directed the Secretary of Interior [54 Stat. 703] to not establish "rights of hunting, fishing, and boating to the Indians in the areas" withdrawn for project purposes. Therefore, no reserved hunting or fishing rights exist in the project area." As shown in the following section, this quote misconstrues the statute and is false and offensive.

> The Secretary of the Interior, in lieu of reserving rights of hunting, fishing, and boating to the Indians in the areas granted under this section and sections 835e to 835h of this title, shall set aside approximately one quarter of the entire reservoir area for the paramount use of the Indians of the Spokane and Colville Reservations for hunting, fishing, and boating purposes, **which rights** shall be subject only to such reasonable regulations as the Secretary may prescribe for the protection and conservation of fish and wildlife: *Provided,* That the exercise of the **Indians' rights** shall not interfere with project operations. The Secretary shall also, where necessary, grant to the Indians reasonable rights of access to such area or areas across any project lands.

16 U.S.C. § 835d. In 1974, Solicitor General Frizzell issued a Solicitor Opinion that explicitly concluded that the Tribes' hunting, fishing and boating rights were exclusive in the Indian Zone and that "paramount" only limited those rights necessary to carry out the federal project purposes; otherwise the Tribes' rights were exclusive. Solicitor General Opinion, 1974 WL 333617, 3-4 (June 3, 1974). Additionally, Solicitor Frizzell held that "the Tribe's hunting, fishing and boating rights in the zone set aside by the Secretary for their paramount use are reserved rights, preserved by Congress in the 1940 Act, and that those rights are exclusive of any such rights of non-Indians in that zone. . ." and that the Tribes "have the power to regulate hunting, fishing and boating by non-Indians in the Indian zone." *Id.* At 6. The Agency's misstatement should be removed and the Agency should revisit its analysis of the project's effect on Indian Trust Assets.

Water Rights

In section 3.14.1 the Agency states that the CCT have water rights within the Columbia River with no mention of the Spokane Tribe. The Tribe asserts here that the Tribe also has

unquantified water rights within the Columbia River and those water rights have a priority date of at least 1877, if not time imemorial. The Agency should revisit this section and correct its failure to incorporate all of the potentially affected rights.

Conclusion

As stated above, the Tribe does not oppose modernization of the pumps covered by the proposal so long as the long term purpose is not to deliver additional waters for out of stream uses. However, the Tribe does oppose the Agency's failure to properly follow NEPA and its erroneous statements regarding Indian rights within Lake Roosevelt and the Columbia River. If you have any questions regarding these comments, feel free to contact me at (509) 458-6500.

Sincerely,

Gregory Abrahamson
Chairman
Spokane Tribe Business Council

Cc: B.J. Kieffer, Director, Tribal Department of Natural Resources
Brian Crossley, Water Program Manager, Tribal Department of Natural Resources
Bruce Didesch, Attorney for the Spokane Tribe of Indians
Ted Knight, Attorney for the Spokane Tribe of Indians

Response to Spokane Tribe of Indians Comment on the Draft EA for the John W. Keys, III Pump-Generating Plant Modernization dated January 31, 2012

Page	Section	Comment	Response
23	3.13 Cumulative Impacts – The Odessa Subarea Special Study	On page 23 of the EA it states, "The Study's [Odessa Subarea Special Study] Final EIS has not been completed, thus this proposal does not meet the test for being a reasonably foreseeable future action subject to analysis of cumulative effects under NEPA." This statement if legally correct would allow an agency to delay the release of a final EIS for the sole purpose of avoiding the cumulative effects analysis, and the Tribe strongly objects to this activity. The Odessa Subarea Special Study Draft EIS was published last year and comments were received up until January 2011. The Final EIS has not been completed because of the Agency's delay and its failure to adequately address the Odessa Special Study more thoroughly within this EA is objectionable. Furtthermore [*sic*], this EA addresses a project that is likely necessary in order for the Bureau to implement the larger Odessa project. As stated in its previous comments the Tribe objects to the Odessa project and hereby incorporates them in their entirety by reference for the record in this EA.	Reclamation has noted that the STI's comments on the Odessa project should be incorporated by reference into the consideration of the Keys Modernization Project. However, the Odessa project is not dependent on the completion of the Keys Modernization Project. The Odessa project is a separate Federal action, and it can proceed with or without the completion of the Keys Modernization Project.
96	3.14.1 Indian Trust Assets – Affected Environment	On page 96 of the EA, the Agency misconstrues the nature of the Tribes' rights and interests in the waters of the Columbia River and Lake Roosevelt. The EA states, "Congress also expressly directed the Secretary of Interior [54 Stat. 703] to not establish "rights of hunting, fishing, and boating to the Indians in the areas" withdrawn for project purposes. Therefore, no reserved hunting or fishing rights exist in the project area." As shown in the following section, this quote misconstrues the statute and is false and offensive. The Secretary of the Interior, in lieu of reserving	The EA was revised to address this comment. In the revised text, Reclamation clarified that the effects of the proposed project are limited to areas within the Reclamation Zone at Lake Roosevelt, where Reclamation does have exclusive control. The project does not have the potential to result in effects within the so-called "Indian Zone" or "Reservation Zone" as defined in the 1990 Lake

Page	Section	Comment	Response
		rights of hunting, fishing, and boating to the Indians in the areas granted under this section and sections 835e to 835h of this title, shall set aside approximately one quruter of the entire reservoir area for the paramount use of the Indians of the Spokane and Colville Reservations for hunting, fishing, and boating purposes, **which rights** shall be subject only to such reasonable regulations as the Secretary may prescribe for the protection and conservation of fish and wildlife: *Provided,* That the exercise of the **Indians' rights** shall not interfere with project operations. The Secretary shall also, where necessary, grant to the Indians reasonable rights of access to such area or areas across any project lands. 16 U.S.C. § 835d. In 1974, Solicitor General Frizzell issued a Solicitor Opinion that explicitly concluded that the Tribes' hunting, fishing and boating rights were exclusive in the Indian Zone and that "paramount" only limited those rights necessary to carry out the federal project purposes; otherwise the Tribes' rights were exclusive. Solicitor General Opinion, 1974 WL 333617, 3-4 (June 3, 1974). Additionally, Solicitor Frizzell held that "the Tribe's hunting, fishing and boating rights in the zone set aside by the Secretary for their paramount use are reserved rights, preserved by Congress in the 1940 Act, and that those rights are exclusive of any such rights of non-Indians in that zone ... " and that the Tribes "have the power to regulate hunting, fishing and boating by non-Indians in the Indian zone." *Id* At 6. The Agency's misstatement should be removed and the Agency should revisit its analysis of the project's effect on Indian Trust Assets.	Roosevelt Cooperative Management Agreement. No reanalysis of impacts to Indian trust assets is needed.

Page	Section	Comment	Response
96	3.14.1	In section 3.14.1 the Agency states that the CCT have water rights within the Columbia River with no mention of the Spokane Tribe. The Tribe asserts here that the Tribe also has unquantified water rights within the Columbia River and those water rights have a priority date of at least 1877, if not time imemorial [*sic*]. The Agency should revisit this section and correct its failure to incorporate all of the potentially affected rights.	The EA was revised to address this comment. Language was inserted to note the STI assertion of water rights.

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CATHY McMORRIS RODGERS
5TH DISTRICT, WASHINGTON

COMMITTEE:
ENERGY AND COMMERCE
SUBCOMMITTEE ON HEALTH
SUBCOMMITTEE ON ENERGY AND POWER
SUBCOMMITTEE ON
ENVIRONMENT AND ECONOMY

REPUBLICAN CONFERENCE
VICE CHAIR

DEPUTY WHIP

Congress of the United States
House of Representatives

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PEND OREILLE
SPOKANE
STEVENS
WALLA WALLA
WHITMAN

Mr. Keith McGowan
Environmental Protection Specialist
Bureau of Reclamation, Columbia Cascades Area Office
1917 Marsh Road (CCA-1607)
Yakima, WA 98901-2058

January 31, 2012

Dear Mr. McGowan:

Attached is my comment with accompanying documents regarding the Draft Environmental Assessment for the John W. Keys III Pump-Generating Plant Modernization project. While I have some concerns regarding the effect of this project on the Coulee community, I appreciate the opportunity to submit comments.

Thank you again for the opportunity to express my views.

Sincerely,

Cathy McMorris Rodgers
Member of Congress

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CATHY McMORRIS RODGERS
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WALLA WALLA
WHITMAN

The Draft Environmental Assessment for the John W. Keys III
Pump-Generating Plant Modernization Project
January 31, 2012
Statement of Congresswoman Cathy McMorris Rodgers

I appreciate the opportunity to express my concerns regarding the Draft Environmental Assessment issued by the Bureau of Reclamation (Bureau) for the John W. Keys III Pump-Generating Plant (JKPGP) Modernization project. The JKPGP Modernization project provides an important opportunity for the Bureau to reaffirm and address what I believe to be an important commitment to the Coulee community – a commitment that has transcended more than fifty years.

Since 1934, the federal government has played an instrumental role in creating and expanding the Grand Coulee Dam and the surrounding community. Even today, the federal government continues to play an important role in the community, providing more than twenty percent of the region's jobs and $159.8 million in annual labor income. The recent proposal to modernize the JKPGP only underscores this longstanding relationship creating yet another bond between the federal government and the community. To that end, I believe that with the project, comes a responsibility to ensure that the Grand Coulee Dam School District is supported.

I don't believe there is a more visible example of the federal government's involvement in the community than the school district. Nor is there a more visible example of the federal government's failings than the school district. Constructed more than sixty years ago by the federal government, the school district's facilities are in desperate need of repair. Buildings are crumbling leaving students to learn in unsafe and unhealthy environments. I believe this is unacceptable.

What is more disappointing is the long-standing recognition by Congress and stakeholders that the Coulee community lacks a sufficient tax base to support the needs of the school district and the federal government's failure to provide much needed assistance. As early as 1953, concern was expressed about the community's ability to succeed without support from the federal government. Even today, a look at the current makeup of land ownership in the community only underscores this point. Ninety-nine percent of the surrounding land is owned by either the federal or state government. This means that approximately one percent of the community is being asked to support the needs of the Grand Coulee Dam School District. One percent of the community is being asked to find $46 million dollars needed to make the school facilities safe and suitable for students and teachers. And, it is this one percent who will also be called upon to support the 30 additional students enrolled as a result of the JKPGP project.

Despite its protestation, I believe the Bureau has the authority to support the school district's needs. The very act that the Bureau cites as basis for no action is the very act that gives the

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federal government the ability to support the needs of the Coulee community. Section 11(b) of the Coulee Community Act of 1957 states "the Secretary is authorized to enter into contracts with the municipality whereby either party might undertake to render to the other such services in aid of performance of activities and functions of the municipality and of the Department of Interior within or near Coulee Dam as will, in the Secretary's judgment, contribute substantially to the efficiency or economy of the operations of the Department of Interior." The legislative history supports this view finding that "it is of prime importance to the Government that these communities continue to function as wholesome and attractive communities suitable as residences for the personnel essential to the care and operation." (*See* S. REP. NO. 267, at 3 (1957).)

While the Bureau directs the Coulee community to look at alternative funding sources, each argument misses the point. The Payment in Lieu of Taxes (PILT) program does not and has never been intended to support schools. In fact, PILT is meant to replace funds for county services such as road maintenance that are lost because of the inability to tax local residents. It has never been intended to replace a school district's ability to tax and raise revenue.

The Bureau also suggests the Impact Aid program, administered by the Department of Education, could provide funds to Grand Coulee Dam School District. And while the Impact Aid program does provide payments to qualifying school districts affected by federal property ownership, significant aid is not available for the Grand Coulee Dam School District. To be eligible for Section 8002 Impact Aid funding, a school district must demonstrate that the federal government has acquired, since 1938, real property with an assessed valuation of at least ten percent of all real property in the district at the time of acquisition. In the case of the Grand Coulee Dam School District, the majority of the land was acquired by the federal government between 1933 and 1937. As a result, the school district is currently ineligible to receive Section 8002 Impact Aid funds. Additionally, Section 8007 provides funds for construction to local school districts that have high percentages of children living on Indian lands or who reside on federal property and have a parent on active duty in the U.S. uniformed services. Despite the fact that 46% of the Grand Coulee Dam School District's students are federally connected, the school district does not meet the threshold. Thus, impact aid is not an option for additional funding.

When the federal government created the Grand Coulee Dam and the surrounding community it established a commitment to the residents and their families. The JKPGP project reaffirms that commitment by demonstrating the federal government's continued vested interest in the dam. To that end, it is only right that the Bureau reaffirm its vested interest in the community. It is my understanding that the estimated cost for the JKPGP project is approximately $400 million dollars. Thus, there is no better way of reaffirming support than by helping to support the school district's effort to raise $46 million to build a safe and suitable school facility and consider including this cost in the final JKPGP project estimate.

"During the years of the building of Grand Coulee Dam and its related works, the Bureau of Reclamation operated a small community, the town of Coulee Dam, adjacent to the dam site." preface

The following is from The Grand Coulee Dam Area: A preliminary Report
By George A. Shipman, September 21, 1953.

"The Grand Coulee (School) District has a relatively small bonded indebtedness: a large part of its plant was Federally-constructed. The Coulee Dam District is now occupying structures owned and maintained by the Bureau of Reclamation . . ." pg. 22

"The problem of this area is in essence an economic one. While an apparent governmental problem is raised by the status of the town of Coulee Dam, that issue is only a vehicle of economic tensions and anxieties. The Grand Coulee Dam area was sparsely settled before construction began; it is, indeed, doubtful; that any incorporated towns would have developed if the dam had not been built." pg. 2

"Educational facilities at Coulee Dam are administered under the Consolidated School District No. 401. A portion of the District covers all of West Coulee Dam lying in Douglas County; all of East Coulee Dam lying in Okanogan county; and the communities situated downstream, including all intervening areas from Coulee Dam north to and including Belvedere, eight miles down the river." pg 6

"The school buildings and grounds belong to the Government. . . The high school is located on the east side at Central Drive and Civic Way. . . The Central School contains 13 classrooms, all on one floor. The building is of a temporary construction . . . The high School is a frame construction with a concrete foundation. It contains 13 classrooms, offices for the school and school district." pg. 7

"The government supplied maintenance services for the buildings and grounds in the amount of $28,242.52 in fiscal year 1953." pg. 8

In the Final Report and Recommendations, January 1954, it says . . . "
defined the fundamental problem of the Grand coulee Dam area as an economic one . . . "

1.3 School properties should be transferred to the school district as soon as the district is prepared to assume ownership responsibility. Pg. 22

Superintendent: Dr. Dennis Carlson
Business Manager: ESD 171

Board Members: Joette Barry, Susan Chaffee, Nita Haag, Carla Marconi, Kenneth Stanger

Grand Coulee Dam School District

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July 21, 2011

Keith McGowan
Environmental Protection Specialist
Bureau of Reclamation, Columbia Cascades Area Office
1917 Marsh Road (CCA-1607)
Yakima, WA 98901-2058

Mr. McGowan:

I am writing you as a result of an article in the Grand Coulee *The Star* newspaper that noted you are seeking input concerning the modernization of the pump-generating plant at Grand Coulee Dam.

I am superintendent of the Grand Coulee Dam School District. and believe it is appropriate for the Bureau to consider the impacts that all projects at the Grand Coulee Dam have on the school district. Increased numbers of workers on temporary or long-term projects usually result in an increase in the number of students that will be attending our schools. Currently, the school district expends approximately $12,600 per student per year while receiving only $7,900 per student per year from all state sources to support our activities on our students' behalf. The remaining dollars come from targeted federal assistance grants, local property taxes or impact aid—few, if any, of which are increased when students arrive in our schools as a result of a project such as the one proposed.

Without knowing the exact plans and timelines, I need to express a concern that the state highway that runs right past the pump-generating plant is the only access that our district has for transporting students between our school sites or for moving our school buses from their storage area to the elementary and middle schools in case of an emergency.

I would welcome the opportunity to visit with you in relation to these concerns and how the Bureau of Reclamation can help mitigate the impacts that result from the proposed project.

Please feel free to contact me if you need any additional information in relation to these concerns.

Sincerely,

Dennis L. Carlson

Dennis L. Carlson, Ed.D.

United States Department of the Interior

BUREAU OF RECLAMATION
Washington, DC 20240

IN REPLY REFER TO:

1 MAR 2011

Honorable Cathy McMorris Rodgers
House of Representatives
555 South Main Street
Colville, WA 99114

Dear Congresswoman McMorris Rodgers:

I am writing to thank you for the opportunity to speak with your staff on January 13, 2011 to discuss funding needs within the Grand Coulee Dam School District (District). I have been in communication with Sheila Stalp from your Office over the past several weeks and have gained an improved understanding of the District's current funding concerns. As the former Power Manager for Reclamation's Grand Coulee Power Office, I am also familiar with school facilities in the area.

Reclamation's analysis of this issue in the past has concluded that there is no existing legal authority for Reclamation to provide funding assistance to the District. In light of the District's pressing need, I asked staff to further investigate so that we could provide a clear determination on the issue this year. Unfortunately, the outcome of that investigation has been to confirm that Reclamation does not have the authority to fund maintenance, repairs, or reconstruction of school facilities in the Grand Coulee Dam area.

Section 6 of the Coulee Dam Community Act of 1957 authorized the Secretary of the Interior to transfer ownership of "the school buildings and grounds, athletic fields, tennis courts, and other properties currently used for educational purposes to the appropriate school district." In the legislative history for that Act, Senate Report No. 267 on S. 1574 states that a purpose of the Act was to provide for "transfer of municipal facilities and limited financial assistance to the town of Coulee Dam and to Grand Coulee." The report subsequently indicates that the Act provides "assurances that costs of this character will terminate," and that, "After the specific and limited allowances provided in S. 1574, the Government will be relieved of any further financial responsibility to these two communities." Because financial assistance was provided as required by the Act and the school property transferred out of federal ownership in 1959, there is no current authority for Reclamation to provide the District with any further financial assistance.

The Department of the Interior currently makes payments to the Counties as required by the Payment in Lieu of Taxes (PILT) Act, Public Law 97-258, as amended. These funds are distributed by the Counties and Reclamation has no input into the distribution of funding to schools. Similarly, Reclamation does not control power revenues from Grand Coulee Dam. The Bonneville Power Administration administers power revenues and allocates operational funding to Reclamation.

Under the Impact Aid program administered by the Department of Education, payments may be made to qualifying school districts affected by Federal property ownership. However, this program is entirely outside of Reclamation's authority. Additional information on the Impact Aid program may be obtained from the Office of Elementary and Secondary Education at 202-401-0113.

Although the relevant limits to Reclamation's authority leave us unable to respond directly to the District's current need for a new school building, we do recognize their concerns and share their interest in the welfare of the community. If Reclamation could be of assistance in any other way, please do not hesitate to contact Karl Wirkus, Pacific Northwest Regional Director, at 208-378-5012.

Sincerely,

David G. Murillo
Deputy Commissioner – Operations

cc: Dennis Carlson, Ed.D.
Superintendent, Grand Coulee Dam School District

Department of Education
Office of Elementary and Secondary Education
400 Maryland Avenue
Washington, DC 20202

Calendar No. 267

85TH CONGRESS, 1st Session | SENATE | REPORT No. 267

PROVIDING FOR DISPOSAL OF CERTAIN PROPERTY IN THE COULEE DAM AND GRAND COULEE AREA, WASHINGTON

MAY 1, 1957.—Ordered to be printed

Mr. JACKSON, from the Committee on Interior and Insular Affairs, submitted the following

REPORT

(To accompany S. 1574)

The Committee on Interior and Insular Affairs, to whom was referred the bill (S. 1574) to provide for disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes, having considered the same, report favorably thereon with amendments and recommend that the bill, as amended, do pass.

AMENDMENTS

The following amendments, proposed by the Department of the Interior, are recommended to perfect the bill, which was sponsored by Senators Jackson and Magnuson:

(a) Page 3, line 4, delete the comma at the end of the line.

(b) Page 3, line 13, delete the comma at the end of the line.

(c) Page 3, line 21, substitute "lands and improvements" for "personal and real property".

(d) Page 4, line 15, substitute "The land and dwelling unit" for the expression "Such dwelling unit".

(e) Page 9, line 2, add a new sentence reading:

> Residential property which is not sold under the preceding provisions of this subsection shall be open to bids from the general public and shall be sold to the highest responsible bidder.

(f) Page 9, line 3, delete "not sold under (1) and property".

(g) Page 9, line 6, delete the comma and insert "and land with church or hospital improvements thereon,".

(*h*) Page 9, lines 9–11, delete the entire present "except" phrase and substitute for it—

> except that which is covered by subsections (b), (c) (3), and (c) (1) of this section".

(*i*) Page 9, lines 20–21, substitute "contiguous" for "and without noncontiguous areas".

(*j*) Page 10, lines 10–13, delete—

> or, if no priority or preference period is provided herein, within one year following the time when such land can be first purchased hereunder

(*k*) Page 12, line 22, insert after the word "section", the words—

> or property sold to the first taker from the general public under subsection (h) of this section or by negotiated sale under subsection (c) (3) of this section

One additional amendment, also proposed by the Department of the Interior, is recommended. Its purpose is to enable the Secretary of the Interior to prevent abuse of certain privileges such as the one that would be available to a tenant-occupant of a Government-owned residence to assign his priority for purchase of the residence to a person who contracts to lease the property back to him. This amendment is to add the following sentence at the end of the second paragraph of subsection 3 (b) (1), at page 5, line 5:

> Assignments under this paragraph shall be subject to such general rules and regulations as the Secretary may prescribe, including denial, in any instance where the Secretary in his judgment finds it proper, to the assignee concerned, or his successors, assigns, or legal representatives, of any discount in or rebate of the purchase price to which such person or persons would otherwise be entitled under this Act.

PURPOSES OF THE BILL

The principal purposes of S. 1574 are:

(1) Facilitating the early incorporation of the town of Coulee Dam under the laws of the State of Washington in order that the United States may withdraw from municipal administration.

(2) (*a*) Authorizing the disposal of residential and other properties by the Secretary of the Interior with preference to occupants at prices based on a fair market appraisal which will recognize the value of existing municipal improvements.

(*b*) Authorizing the Secretary, if private financing with FHA-insured loans is not available to priority purchasers, to accept a down-payment and extend time for payment of the balance. In the case of residential properties, the terms will be not more favorable than those available under the National Housing Act.

(3) Providing for transfer of municipal facilities and limited financial assistance to the town of Coulee Dam and to Grand Coulee.

(4) Recognizing the need for equitable space-heating power rates and assisting in obtaining adequate sewage disposal facilities for both Coulee Dam and Grand Coulee.

The two communities, Coulee Dam and Grand Coulee, in the State of Washington, are intimately associated with the construction and

operation of the Grand Coulee Dam, powerplant, and pumping plants. These key features of the Columbia Basin project have the dual function of supplying the irrigation water to the million acre project, and generating electric power that is an important element of the Bonneville Power Administration supply for agriculture and industry throughout the Northwest. These facilities represent a Federal investment of more than $300 million.

Coulee Dam and Grand Coulee came into existence as a result of the project construction beginning in 1934. Thousands of men were engaged in this task for about 15 years, and these towns were the place where most of them lived. Coulee Dam was the Government camp for Bureau of Reclamation and contractors' personnel; Grand Coulee was the private development. From that initial development, the locality has now settled into a stable area. With substantial completion of the dam, powerplant, pumping plant and the appurtenant works, construction personnel have been greatly reduced in numbers, and the main project headquarters has been moved to Ephrata which is more accessible to the irrigation division. The permanent Government force for operating the dam and related works has stabilized at around 400. There is a considerable additional number of people, not Government employees, who are engaged in servicing the many thousands of visitors to the dam. In addition, these towns provide an important commercial and social center for the general area.

It is, of course, of prime importance to the Government that these communities continue to function as wholesome and attractive communities suitable as residences for the personnel essential to the care and operation of the $300 million plant, as well as to care for the hundreds of thousands of persons who visit the installation each year. Both communities are willing to accept this responsibility as soon as certain difficulties have been removed.

These obstacles to local self-support and self-government of the two communities exist because of the special circumstances surrounding the origin and early development of the towns. In Coulee Dam, for example, virtually all of the real estate is Government-owned and therefore tax-exempt. In order for the town to be self-supporting, it is necessary for real estate to be in private ownership. There are a number of other comparable problems to work out at Coulee Dam, and certain other problems at Grand Coulee that also developed as a result of project conditions.

NO EXTRA COST TO THE GOVERNMENT

Testimony at the hearing brought out that enactment of S. 1574 will result in no costs to the Government additional to expenses under existing administration. The financial assistance to Coulee Dam in becoming an independent municipality, limited to $80,000, is small in comparison with relieving the Government of the responsibility for town administration which now requires the services of 25 employees. Similarly the financial contribution to the costs of an adequate sewage disposal plant, limited in the bill to not to exceed $130,000 is no more than the expense that would have to be incurred for protection of the project.

Conversely, enactment of S. 1574 provides assurance that costs of this character will terminate. After the specific and limited allow-

ances provided in S. 1574, the Government will be relieved of any further financial responsibility to these two communities.

PUBLIC HEARING HELD

A hearing was held on the bill on April 10 at which all witnesses favored the bill.

EXECUTIVE CORRESPONDENCE

The letter of March 26, 1957, from the Assistant Secretary of the Interior, and the letters of March 29, 1957, and July 2, 1956, from the Assistant Director of the Bureau of the Budget, are as follows:

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 26, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: You have requested an expression of the views of this Department on S. 1574, a bill to provide for the disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes.

We recommend that S. 1574 be enacted with certain revisions hereinafter discussed.

The 84th Congress had before it two bills (H. R. 1803 and H. R. 10338) dealing with the same subject as S. 1574. Our reports on those bills contain much information which will be of value in your consideration of S. 1574, particularly with respect to the origin of the bill and the various changes that have been made since the time the original version was drafted. We request that those reports, copies of which are attached, be considered in connection with this one.

The principal purposes of S. 1574 are these:

(1) Facilitating the early incorporation of the town of Coulee Dam under the laws of the State of Washington in order that the United States may withdraw from municipal administration.

(2) (*a*) Authorizing the disposal of residential and other properties by the Secretary of the Interior with preference to occupants at prices based on a fair market appraisal which will recognize the value of existing municipal improvements.

(*b*) Authorizing the Secretary, if private financing with FHA-insured loans is not available to priority purchasers, to accept a down-payment and extend time for payment of the balance. In the case of residential properties, the terms will be not more favorable than those available under the National Housing Act.

(3) Providing for transfer of municipal facilities and limited financial assistance to the town of Coulee Dam and to Grand Coulee.

(4) Recognizing the need for equitable space-heating power rates and assisting in obtaining adequate sewage disposal facilities for both Coulee Dam and Grand Coulee.

A section-by-section analysis of the bill follows:

Section 1 of the bill states its purposes and describes the lands included in the town area. This description does not purport to show precisely the area that is likely to be incorporated.

Section 2 deals generally with the authority of the Secretary of the Interior to dispose of real and personal property in the Coulee Dam and Grand Coulee areas.

Section 3 deals with the manner of disposal, priority of purchasers, and terms of sale of the various Federal properties which are to become private property in the Coulee Dam area. Although this section needs certain clarifying amendments hereafter set out, its subsections (b)-(f), inclusive, appear to establish the following categories of property with the priorities indicated under each:

A. Improved property—residential (subsection (b)):
   1. Tenant of the United States who occupies the dwelling unit or, under certain conditions, his assignee.
   2. Tenants of the United States in Federal housing in the Coulee Dam area and persons eligible to become such tenants.
   3. The highest responsible bidder.

B. Improved property—nonresidential (Government improvements) (subsecs. (d) and (f)):
   1. Tenant of the United States who occupies the property.
   2. Persons leasing property from the United States in the Coulee Dam area for commercial purposes.
   3. The highest responsible bidder.

C. Improved property—nonresidential (private commercial improvements) (subsec. (c) (1), (2), and subsec. (f)):
   1. The owner of the improvement.
   2. Persons leasing property from the United States in the Coulee Dam area for commercial purposes.
   3. The highest responsible bidder.

D. Improved property—nonresidential (churches and hospitals) (subsec. (c) (1), (3)):
   1. The owner of the improvement.
   2. Other prospective purchasers.

E. Unimproved property—zoned residential (subsec. (e) (1)):
   1. Tenants of the United States in Federal housing in the Coulee Dam area and persons eligible to become such tenants.
   2. The highest responsible bidder.

F. Unimproved property—zoned nonresidential (subsec. (e) (2) and subsec. (f)):
   1. Persons leasing property from the United States in the Coulee Dam area for commercial purposes.
   2. The highest responsible bidder.

The priority purchasers in each of these categories are, under the terms of the bill, authorized to purchase at appraised value less certain discounts established under subsection (j). The bill incorporates various provisions to guard against the same person's exercising multiple priorities.

Provision is made in subsection (b) whereby a tenant-occupant of a Government-owned residence who wishes to continue to rent the property instead of purchasing it may assign his priority to a person who has entered into a valid contract to lease the property back to him. In addition, the Secretary would be authorized to permit other assignments where fair and equitable. These provisions originated with the Coulee Dam Advisory Council, its justification being that it would provide assurance that essential employees in the town area would not be unsettled, should they not desire or not be able to purchase the

houses they occupy. Whether there will be any practical need for this provision is, of course, problematical. We do not foresee that it would necessarily offer any difficulties to the administration of the disposal provisions of S. 1574. However, the Secretary should be in a position, if necessary, to prevent any abuse of this right. We recommend, therefore, that the following sentence be added at the end of the second paragraph of subsection 3 (b) (1), viz., at page 5, line 5:

"Assignments under this paragraph shall be subject to such general rules and regulations as the Secretary may prescribe, including denial, in any instance where the Secretary in his judgment finds it proper, to the assignee concerned, or his successors, assigns, or legal representatives, of any discount in or rebate of the purchase price to which such person or persons would otherwise be entitled under this act."

Subsection (a) of section 3 provides that land which is occupied by Government improvements at the time of sale shall be sold with the improvements in place. Subsection (g) provides for the separate sale of improvements after the lapse of a year from the expiration of the time given for priority purchases. It is the understanding of this Department that neither of these subsections will prevent the separate sale and the removal of improvements prior to the time when the land is first offered for sale. In fact, such removal is clearly contemplated by subsection (e) which deals with "land in the town area which has not been improved or from which the improvements have been removed * * *."

Subsection (h), in effect, forbids the sale of any property at less than appraised value, but permits negotiated sales at or above that figure in the event all bids received at public sale are less than that amount or no bids are received.

Subsection (i) deals with financing of the purchase price of the property. It provides, in substance, that purchasers must attempt to secure private financing, but permits financing by the Secretary of the Interior in the case of certain priority purchasers if private financing is impossible. A survey indicates that purchasers are not likely to find private lending institutions willing to lend money on the temporary housing in Coulee Dam. These circumstances could be insurmountable obstacles to the attainment of the primary objectives of the legislation. It is for this reason that provision is made for financing sales by the Secretary. Much the same organization as that now being employed to finance the sale of irrigation farm units on the Columbia Basin project would be used for this purpose. Under the bill Government financing of lots occupied by Government dwelling units would be on no more favorable terms to the purchaser than those available under FHA-insured mortgage financing.

It may be found necessary for the United States to retain a limited number of housing units for a period after enactment of the bill. Indications are that approximately 15 units will be required in order to give a small measure of leeway for employment adjustments during this period. It is believed that such a period would not extend beyond 1 year after incorporation of Coulee Dam. The bill has sufficient flexibility to enable this to be accomplished.

Subsection (j) provides that in all sales of property under section 3, except public sales, there shall be allowed a discount of 5 percent of the appraised value. In addition, the purchasers, or their successors or assigns, would be granted a discount or rebate of 10 percent of the

appraised value, provided that the municipality achieved incorporation within 4 years of the date of enactment of the bill. The provision in subsection (i) for financing of property purchases by the Secretary under certain circumstances is understood by this Department to mean an immediate cash payment of 10 percent of the appraised value minus the discount or discounts applicable at the time. Our understanding is similar with respect to the meaning of the phrase "less applicable discounts" that appears elsewhere in the bill.

While we recognize that subsection 35a of the Atomic Energy Community Act of 1955 (69 Stat. 471, 474) allows a discount of at least 15 percent to priority purchasers of housing property in the affected communities, we question whether the 5 percent discount which S. 1574 would grant over and above the 10 percent discount for prompt incorporation is warranted.

Section 4 would amend the National Housing Act by authorizing the Federal Housing Administrator to insure mortgages executed in connection with the sale of Government housing at Coulee Dam. This provision, it is hoped, will facilitate the obtaining of private loans for purchasers of this housing.

Section 5 would provide for the determination of the appraised values of Government property disposable under section 3 by an appraiser or appraisers designated by the Administrator of the Housing and Home Finance Agency. After 5 years the authority to make reappraisals would pass to the Secretary of the Interior. This section points up the fact that, while various municipal facilities are to be transferred to the town without cost, the Government's investment therein will be returned to the extent it is reflected in the appraised value of the properties.

Section 6 would authorize the Secretary to transfer to Grand Coulee and, if it is incorporated within 4 years from the date of the act, to Coulee Dam municipal-type property and facilities, including utilities, not needed for Federal purposes. The Secretary would also be authorized to transfer school properties to the appropriate school district and certain highway improvements to the State of Washington.

Section 7 proposes two types of payments to be charged to proceeds from property sales under section 3:

(1) A total of not more than $130,000 would be made available for expenditure in connection with sewage disposal in, and in the immediate vicinity of, the towns of Coulee Dam and Grand Coulee. Of this amount, not more than $30,000 would go to Coulee Dam and not more than $100,000 to Grand Coulee.

It is important to provide for chlorination of sewage effluent for Coulee Dam in order to meet the requirements of the Washington State Pollution Control Commission. This would be in keeping with similar action being taken by cities upstream from the dam. Certain project facilities will continue to use this sewer system on both sides of the river after the town is incorporated. Except for this sum, it is not proposed that there be any expenditure for rehabilitation of facilities to be transferred to the town pursuant to section 6.

The $100,000 available as a grant to Grand Coulee would be used for its construction of a sewage disposal facility (the present cost estimate of which is about $75,000) and the covering of an open ditch which runs through the town parallel to the highway. This provision is aimed principally at the correction of a bad situation created by the

emptying of the town's sewage into the diked-off Crescent Bay above the dam. The breaking of the dike could create a problem of concern to the area and even to the project. Although pressure has been exerted on the town by Federal health authorities, it is clear that the town does not have the financial resources to provide a sewage-disposal facility. In this circumstance, it appears appropriate that the United States, using proceeds from the property sales, assume the responsibility for assisting in rectifying this situation. Such an action is further justified by the fact that Grand Coulee also serves project needs in furnishing housing to construction workers and Government employees. The ditch, which was constructed by the Bureau of Reclamation to remove drainage from the north dam of the equalizing reservoir, is an unsightly hazard and restricts access to business property.

(2) Payment of $80,000 to enable the new municipality of Coulee Dam to meet the expenses incident to incorporation and the beginning of municipal operations would also be authorized. This would offset the lag in the receipt of tax revenues and furnish funds for the town's current expense budget until replacement of temporary buildings by permanent buildings increases the property-tax base, a normal increase in the number of businesses increases the business occupation tax, and the population increase following incorporation increases the State-collected-locally-shared taxes and increases utility revenues without appreciably increasing utility expense. Payment of the $80,000 would be made in installments over a 3-year period. Payments would be scheduled as follows: (1) $44,000 on incorporation, (2) $21,000 1 year thereafter, and (3) $15,000 2 years thereafter. In accordance with subsection 9 (a) the second and third of these payments could be made only after specific appropriation by Congress. To be eligible for any of the payments under subsection 7 (b), the town would have to incorporate within 4 years after the date of the act.

Subsection (c) of section 7 covers a matter that could be met, it is believed, without additional legislation. It is intended to carry out on a modified basis the recommendation of the Shipman report with respect to rates for electric energy in the vicinity of the dam. It is the general policy of this Department not to establish special rates of the kind here proposed, but there are circumstances that have justified a special rate in Coulee Dam because of the character of original construction and heating installations. Some of these factors are present also in the Grand Coulee service area. Heating installations at Coulee Dam are electric throughout. Electrical heating under normal rates is, of course, more expensive than other methods of heating, but it was installed originally in the town because it was the means most readily available and the most economical in the circumstances. To require the residents to pay standard rates for electric energy when their houses are heated by such means would work a great hardship on them. To require them at this time to install other methods of heating would impose a heavy burden. If ordinary rates were charged, it would probably be necessary to have some form of Government subsidy. Therefore, as an exception to our usual policy, it is proposed to meet this situation for a limited period of time; but it is felt desirable to have the exception made with congressional approval as here proposed. Subsection 7 (c)

would give the Secretary of the Interior discretion in establishing rates, as long as they were at least at cost. It is expected that the low rates under this subsection would be extended to municipalities to cover electric heating requirements based upon housing heated by electricity at the date of incorporation of the town of Coulee Dam.

Section 8's purpose is to make property of the United States which is sold under conditional sales contracts taxable. A similar method of handling this problem was provided in the sales of settlement lands under subsection 5 (c) of the Columbia Basin Project Act (16 U. S. C., sec. 835-1 (c)).

Section 9, subsection (a), establishes the procedure whereby funds are made available for the purposes described therein. Subsection (b) provides that the transfer of property to non-Federal ownership under the proposed legislation should not become the basis for elimination of any reimbursable costs of the Columbia Basin project. This is of primary significance with respect to the transfer of property to non-Federal entities under section 6. Net proceeds of sales of property under the proposed legislation would, of course, be credited to the project.

It is anticipated that the gross proceeds from the sale of property will amount to approximately $1 million over a period of 5 to 7 years. As heretofore stated, $130,000 of this amount will be used principally for facilities for proper disposal of sewage to meet public health standards; $80,000 will be made available for assisting Coulee Dam in financing its operations for the first 3 years after incorporation; and the remainder, after deducting the expense relating to the sale of property, will be returned to the reclamation fund to reduce the capitalization of the Columbia Basin project as a whole.

Section 10 provides that transfers of Federal property under the act shall not impair rights under existing leases.

Section 11 contains general authority for the implementation of other provisions of the bill.

The following amendments are recommended to perfect the bill:

(*a*) Page 3, line 4, delete the comma at the end of the line.

(*b*) Page 3, line 13, delete the comma at the end of the line.

(*c*) Page 3, line 21, substitute "lands and improvements" for "personal and real property".

(*d*) Page 4, line 15, substitute "The land and dwelling unit" for the expression "Such dwelling unit".

(*e*) Page 9, line 2, add a new sentence reading:

"Residential property which is not sold under the preceding provisions of this subsection shall be open to bids from the general public and shall be sold to the highest responsible bidder."

(*f*) Page 9, line 3, delete "not sold under (1) and property".

(*g*) Page 9, line 6, delete the comma and insert "and land with church or hospital improvements thereon,".

(*h*) Page 9, lines 9–11, delete the entire present "except" phrase and substitute for it "except that which is covered by subsections (b), (c) (3), and (e) (1) of this section".

(*i*) Page 9, lines 20–21, substitute "contiguous" for "and without non-contiguous areas".

(*j*) Page 10, lines 10–13, delete "or, if no priority or preference period is provided herein, within one year following the time when such land can be first purchased hereunder".

(*k*) Page 12, line 22, insert after the word "section", the words "or property sold to the first taker from the general public under subsection (h) of this section or by negotiated sale under subsection (c) (3) of this section".

The Bureau of the Budget has advised that, while there would be no objection to the submission of this report to your committee, it believes that the proposed $100,000 grant to Grand Coulee should be handled as a long-term loan. It also looks with disfavor on the 5 percent discount provision in subsection 3 (j). A copy of the Bureau of the Budget's letter to us of March 21 on H. R. 3389 is attached at its request.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 21, 1957.

The honorable the SECRETARY OF THE INTERIOR.
(Attention Mr. Theodore F. Stevens, 6041 Interior Building.)

MY DEAR MR. SECRETARY: This is in reply to Acting Secretary Chilson's letter of March 1, 1957, transmitting copies of a report which the Department of the Interior proposes to present to the chairman of the House Committee on Interior and Insular Affairs with respect to H. R. 3389, a bill to provide for the disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes.

The full views of the Bureau of the Budget on H. R. 10338, 84th Congress, an identical bill to H. R. 3389, are contained in our letter of July 2, 1956, to the chairman of the House Committee on Interior and Insular Affairs. A copy of that letter was furnished you on the same date.

There would be no objection to the submission of the Department's proposed report to the Congress. Subject to consideration being given to the views of the Bureau of the Budget as set forth in the letter of July 2, 1956, enactment of this legislation is recommended.

It will be appreciated if a copy of this letter accompanies your report to the Congress.

Sincerely yours,

ROGER W. JONES,
Assistant Director for Legislative Reference.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., July 2, 1956.

The honorable the SECRETARY OF THE INTERIOR.
(Attention Mr. Elmer F. Bennett, 6041 Interior Building.)

MY DEAR MR. SECRETARY: This is in reply to Assistant Secretary Aandahl's letter of May 10, 1956, transmitting copies of a report which the Department of the Interior proposes to present to the

chairman of the House Committee on Interior and Insular Affairs with respect to H. R. 10338, a bill to provide for the disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes.

The Bureau of the Budget is substantially in agreement with the views expressed in your proposed report except as concerns the financing of certain works for the town of Grand Coulee.

Subsection 7 (a) would authorize the expenditure of $100,000 to provide sewage disposal facilities for the town of Grand Coulee and to cover an open drainage ditch in the town of Grand Coulee. The Bureau of the Budget stated its views with respect to authorizing expenditures to provide facilities for the town of Grand Coulee in our letter of May 20, 1955, on H. R. 1803, a copy of which is included among the enclosures to your proposed report.

While there would be no objection to the Department submitting whatever report is deemed appropriate, you may wish to give consideration to modification of your proposed report in view of our comments. A copy of our letter to the committee on this bill is enclosed.

Sincerely yours,

ROGER W. JONES,
Assistant Director for Legislative Reference.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 29, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

MY DEAR MR. CHAIRMAN: This is in response to your letter of March 15, 1957, requesting the views of the Bureau of the Budget with respect to S. 1574, a bill to provide for the disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes.

The Bureau of the Budget's views on an identical bill, H. R. 10338, 84th Congress, are contained in our letter of July 2, 1956, to the chairman of the House Committee on Interior and Insular Affairs, copy attached.

Subject to consideration being given to our comments in the aforementioned letter, the Bureau of the Budget favors enactment of this legislation.

Sincerely yours,

ROBERT E. MERRIAM, *Assistant Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., July 2, 1956.

Hon. CLAIR ENGLE,
Chairman, House Committee on Interior and Insular Affairs,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: This is in response to your letter requesting the views of the Bureau of the Budget with respect to H. R. 10338, a bill to provide for the disposal of certain Federal property in the Coulee Dam and Grand Coulee areas, to provide assistance in the establishment of a municipality incorporated under the laws of Washington, and for other purposes.

The bill would authorize the Secretary of the Interior to dispose of certain Federal properties in the towns of Coulee Dam and Grand Coulee and nearby areas. Residential and business properties would be sold at appraised value less purchase and incorporation incentives with first priority being given to tenants and second priority to others entitled to reside in the municipality of Coulee Dam. Any property remaining would be sold to the highest bidder at a price not less than appraised value. A purchase incentive consisting of a 5 percent reduction from appraised value is offered to priority purchasers. Incentives for incorporation of both Coulee Dam and Grand Coulee within 4 years following the date of the act are offered by providing for rebates in the amount of 10 percent of the appraised value on properties sold to priority purchasers under the act, by transfer of certain municipal facilities to the municipalities, and by financial assistance to the town of Coulee Dam. The bill provides that proceeds from sales of property may be used (1) for expenses of disposal of Federal property under the act, (2) for payment of $100,000 to the town of Grand Coulee for construction of sewage disposal facilities and betterment of a drainage ditch, and $30,000 to the town of Coulee Dam for construction and/or improvements of sewage disposal and drainage facilities, and (3) for other payments to the town of Coulee Dam. Proceeds in excess of amounts required for these purposes would be covered into the reclamation fund.

The Bureau of the Budget believes that the two provisions of H. R. 10338 discussed below are of questionable desirability and recommends that consideration be given to their amendment or deletion.

Subsection 3 (j) would provide a 5 percent discount below appraised value to priority purchasers. It would appear that this discount is not required in order to encourage purchases of properties to be sold under the act and it would not serve any other Federal purpose. While the economy of the town of Coulee Dam is largely dependent upon operation of Coulee Dam, the situation is not readily comparable with towns disposed of under the Atomic Energy Community Act of 1955 (69 Stat. 471, 474), in which a purchase incentive was provided to priority purchasers. The extent of operations on which the economy of the later municipalities depend may fluctuate with changes in military nuclear requirements. On the other hand, the economy of the town of Coulee Dam, dependent as it is upon the operation and maintenance of the multiple-purpose Columbia Basin project, would appear to be relatively stable and secure from such fluctuations. Accordingly, the Bureau of the Budget believes that a 5 percent discount to

priority purchasers would be an unwarranted windfall from the Federal Government.

Subsection 7 (a) would authorize expenditure of proceeds derived from sales of properties under the act in an amount not to exceed $100,000 for work in connection with the disposal of sewage from the city of Grand Coulee and betterment work on the existing open drain along the north side of the highway through this city. The views of the Bureau of the Budget on a similar provision in H. R. 1803 were set forth in a letter dated May 20, 1955, to the Secretary of the Interior. Copies of this letter were forwarded to your committee with the Secretary's report dated July 7, 1955, on H. R. 1803 and will be attached to the report which he proposes to submit to your committee on H. R. 10338. The Bureau of the Budget still believes that either of the two alternatives discussed in our letter of May 20, 1955, would be preferable to subsection 7 (a) of H. R. 10338.

Subject to consideration being given to the foregoing comments, the Bureau of the Budget favors enactment of this legislation.

Sincerely yours,

ROBERT E. MERRIAM,
Assistant to the Director.

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Response to Congresswoman Cathy McMorris Rodgers Comment on the Draft EA for the John W. Keys, III Pump-Generating Plant Modernization dated January 31, 2012

Reclamation reviewed the materials provided with the comment letter and the Coulee Dam Community Act of 1957. Reclamation reviewed Section 11(b) of the 1957 act and concludes that while Section 11(b) authorizes the Secretary to contract with the "municipalities," that is not the same as authorizing the Secretary to expend appropriated funds for other than authorized purposes. House Rep. No. 809, July 15, 1957, explains that Section 11 contains general authority for implementation of other provisions of the act" and thus does not create new spending authority for schools.

The Congresswoman also cites legislative history, which her letter quotes as stating "it is of prime importance to the Government that these communities continue to function as wholesome and attractive communities suitable as residences for the personnel essential to the care and operation." The full text from that portion of the Senate Report indicates that Congress was concerned with eliminating obstacles to local self-support and self-government in the Grand Coulee and Coulee Dam communities and emphasizes congressional intent that the communities would become self-supporting due to transfer of government-owned property into private ownership. Rep. No. 267, May 1, 1957

The purpose of the 1957 Act was "to authorize the disposal of certain Federal properties" in the vicinity at Grand Coulee Dam "in order that the United States may withdraw from the ownership and operation of the town and that the people of that area may enjoy self-government. . ." Section 9 provides that proceeds from the sale of Federal properties are available to the Secretary for 1) expenses of disposal of Federal property under the act, and 2) to provide sewage and draining infrastructure to the municipalities of Coulee Dam and Grand Coulee, and to provide those cities with limited funding over their first two years of incorporation. Section 6(b) authorized the Secretary to transfer without cost "the school buildings and grounds, athletic fields, tennis courts, and other properties currently sued for educational purposes to the appropriate school district." The Act is silent with regard to future maintenance, repair, or construction costs of those buildings, which are no longer federally owned. Reclamation does not find legal authority in the Coulee Dam Community Act to expended appropriated funds for maintenance, reconstruction, or other costs.

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February 11, 2012

Jim Taylor, c/o
Bureau of Reclamation
1150 North Curtis Road, Suite 100
Boise, ID 83706-1234

RE: Draft Environmental Assessment for the John W. Keys III Pump-Generation Plant Modernization Project

CONTROL #:
FOLDER #:

Dear Mr. Taylor,

As the Washington State Senator for the 12th Legislative District, I represent all of Chelan and Douglas, as well as parts of Grant and Okanogan Counties. Grand Coulee Dam and the surrounding communities of Elmer City, Grand Coulee, Coulee Dam and Electric City are all part of my district. Nespelem, also served by the Grand Coulee Dam School District (GCDSD), will join the 12th district as a result of the recent redistricting. I am writing to urge the Bureau of Reclamation (Bureau) to consider the impact that the Grand Coulee Dam and the John W. Keys II Pump-Generation Plant Modernization Project have on the Grand Coulee Dam School District.

Since 2008, I have been working with the GCDSD to secure the necessary funding for a new K-12 facility. Due to the abundance of state and federally-owned land in the district (23%), the amount of property held in trust by the government for the Colville Confederated Tribes (6%), the amount of tax-advantaged open space (70%), and the legal debt limit placed upon the GCDSD, it is impossible for them to fund the necessary capital improvements to their facilities.

The State stands ready to do its share in funding this project. The state's school-construction assistance program provides a contribution based on the number of students who need to be housed, which yields the eligible square footage; the per-square-foot construction cost; and a percent of that cost based on local property value and student enrollment. The capital budget has earmarked funds for this project in the last three legislative sessions and the current capital budget reserves $14 million for the purpose. But the state cannot do this alone. Over the last three legislative sessions, the Legislature has addressed an $18 billion five-year budget problem with $10 billion in reductions and other actions without raising taxes on citizens who can ill afford more taxes during the prolonged economic recovery. And, this session, the Legislature faces yet another $2 billion projected budget gap. Recognizing the urgent need of this school-construction project, the state has continued to set aside funds for GCDSD and is ready to release them when the remaining funding is available.

I believe the Bureau and the Federal Government have a responsibility to this community. This belief is reinforced through the Coulee Community Act of 1957. The act states, "It is of prime importance to the Government that these communities continue to function as wholesome and attractive communities suitable as residences of the personnel essential to the care and operation." (See S. REP. NO. 267, at 3 (1957).) I do not know what is more important to a community than being able to have quality educational facilities that meet the needs of their students and staff. Our schools are often the cornerstone of our communities, and the Bureau should recognize the responsibility it has to ensure the vitality of these facilities.

The Federal Government continues to have a vested interest in the Dam, and therefore should also uphold its responsibility to the residents and families who reside in the community it established. There is no better way to show this type of commitment than by taking seriously the impact this modernization project will have on the GCDSD, and by doing its part to fund a new K-12 educational facility. I have told the GCDSD and the communities it serves that I am here to help and I am pleased to make the same offer to the Bureau. Please do not hesitate to let me know if I can be of assistance in any way.

Thank you for the opportunity to comment on the impact this project will have on the communities that are served by the GCDSD. If I can answer any questions that arise from this request, please contact my Olympia office at 360-786-7622.

Sincerely,

Linda Evans Parlette

LINDA EVANS PARLETTE
Washington State Senator
12th Legislative District

CC: Congresswoman Cathy McMorris Rodgers
U.S. Senator Patty Murray
U.S. Senator Maria Cantwell
Dennis Carlson, Superintendent, Grand Coulee Dam School District

Response to Washington State Senator Linda Evans Parlette Comment on the Draft EA for the John W. Keys, III Pump-Generating Plant Modernization dated February 11, 2012

Thank you for your comment. Please see previous response to Congresswoman Cathy McMorris Rodgers.

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