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October 6, 2010

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Subject: COMMENTS, RECOMMENDATIONS, TERMS AND CONDITIONS, AND PRESCRIPTIONS - Review of Notice of Application Ready for Environmental Analysis, Soliciting Comments, Recommendations, Preliminary Terms and Conditions, and Preliminary Fishway Prescriptions for the Wells Hydroelectric Project, FERC No. 2149-152, Chelan and Douglas Counties, Washington

Dear Ms. Bose:

The Department of the Interior (Department) has reviewed the Notice of Application Ready for Environmental Analysis, Soliciting Comments, Recommendations, Preliminary Terms and conditions, and Preliminary Prescriptions for the Wells Hydroelectric Project, FERC No. 2149-152, located on the mid-Columbia River in Douglas and Chelan counties, Washington. The notice was issued by the Federal Energy Regulatory Commission (Commission) on August 10, 2010. The Project is owned and operated by Public Utility District No. 1 of Douglas County (applicant). The comments, recommendations, and prescriptions herein are provided in accordance with the provisions of the Fish and Wildlife Coordination Act (16 U.S.C. § 661 *et seq.*), the Federal Power Act (FPA), (16 U.S.C. § 791 *et seq.*), the Endangered Species Act (ESA) 16 U.S.C. § 1531 *et seq.*), and the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 *et seq.*). They address environmental impacts related to the issuance and exercise of the requested license, and provide recommendations for the conservation and development of fish, wildlife, and recreation resources.

The Department does not object to the issuance of a new license for the Wells Hydroelectric Project provided our comments, recommendations, terms and conditions, and prescriptions are considered by the Commission and incorporated into the new license. However, because a draft NEPA document has not yet been issued by the Commission, this response contains preliminary

recommendations and prescriptions only. Accordingly, the Department reserves the right to amend these comments, recommendations, and prescriptions, if warranted, based on the results of information and conclusions developed during the Commission's environmental analysis.

ENERGY POLICY ACT REVIEW PROCESS

The Energy Policy Act of 2005 (EPA) provides parties to this relicensing proceeding the opportunity to request trial-type hearings regarding issues of material fact that underlie fishway prescriptions developed under section 18 of the FPA. Through this filing, the Department is submitting preliminary fishway prescriptions on behalf of the Secretary of the Interior. The administrative record in support of the preliminary prescriptions is contained in the Commission's formal docket for the Project, FERC Project No. 2149-152, and may be accessed through the Commission's eLibrary system at <http://www.ferc.gov/docs-filing/elibrary.asp>. An index for the administrative record supporting the preliminary prescriptions is contained in **Enclosure A** of this document. The EPA also allows parties to propose alternatives to preliminary fishway prescriptions. Procedures for requesting trial-type hearing on a factual issue or for proposing alternatives are set forth at 43 C.F.R. Part 45 of the DOI's regulations. If necessary, the Department will file modified recommendations and fishway prescriptions with the Commission within 60 days of the close of the comment period on the Commission's draft NEPA document.

PROCEDURAL HISTORY

The original license for the Project will expire on May 31, 2012. In accordance with the Commission's regulations, 18 C.F.R. Part 5 (2009), the applicant initiated the Integrated Licensing Process (ILP) for the relicensing of the Project on December 1, 2006 by filing a Notice of Intent to apply for new license and a Pre-Application Document. The Commission staff issued Scoping Document 1 on January 29, 2007. Following consultations with various entities, the applicant filed its Proposed Study Plan Document and Revised Study Plan Document on May 16, 2007, and September 14, 2007, respectively. The Commission staff issued its Study Plan Determination on October 11, 2007. The applicant filed its Initial Study Report Document on October 15, 2008, and the Commission staff issued a Determination on Requests for Modification to the Project Study Plan on February 4, 2009. The applicant filed an Updated Study Report Document on April 15, 2009.

The Commission designated the applicant as its non-federal representative to conduct informal consultations under section 7 of the ESA and the applicant prepared a draft Biological Assessment in consultation with the U.S. Fish and Wildlife Service (Service) and National Marine Fisheries Service (NOAA Fisheries). The applicant distributed a Draft License Application for comment on December 18, 2009. On May 28, 2010, the applicant filed a Final License Application for the continued operation and maintenance of the Project. Exhibit E to the Final License Application (FLA) contains a Draft Environmental Assessment prepared in accordance with the Commission's Guidelines under NEPA.

In March 2006, the applicant approached stakeholders regarding development of an Aquatic Settlement Agreement for those resources not already protected by the original license, the Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP) and other related agreements. Stakeholders active in the development and implementation of the Aquatic Settlement Agreement included the Service, the Bureau of Land Management (BLM), NOAA Fisheries, Washington Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), the Confederated Tribes and Bands of the Colville Reservation (Colville Tribes), and Confederated Tribes and Bands of the Yakama Nation (Yakama Nation). The final Agreement was distributed for execution in October 2008 and signed by the applicant, Service, BLM, Ecology, WDFW, Colville Tribe, and Yakama Nation.

The Aquatic Settlement Agreement contains six aquatic resource management plans intended to protect and enhance populations of white sturgeon, Pacific lamprey, bull trout and native resident fish; protect and restore water quality within the Project; and prevent the introduction and further spread of aquatic nuisance species. These resource management plans have been identified and included in their entirety in the Final License Application as the applicant's proposed environmental measures for such resources pursuant to section 5.15(a)(5)(C) of the Commission's regulations. The applicant requested the Commission to incorporate, without modification, the proposed license articles and aquatic resource management plans as conditions of the new license. The six aquatic resource management plans, together with the Wells AFA/HCP, form the foundation of the applicant's Final License Application for the Project with respect to management of aquatic resources. In addition to measures for the protection of aquatic resources, the Final License Application includes several management plans for the protection and enhancement of terrestrial, recreation and cultural resources associated with the Wells Project.

Much of the completion and development of plans and environmental measures contained in the applicant's Aquatic Settlement Agreement and subsequently recommended or prescribed for implementation under the new license will necessitate the continued involvement of State and Federal resource agencies and other affected parties. Implementation of the plans and measures were discussed during settlement negotiations, and addressed in the Aquatic Settlement Agreement by the formation of several resource management groups. These groups, as proposed in the Aquatic Settlement Agreement and the FLA, are referred to as the Aquatic Settlement Work Group (Aquatic SWG) and the Terrestrial Work Group (TWG). These groups will provide input on and review of several plans and specific measures called for in the plans that will not be finalized until after the new license is issued. In addition, these groups will be consulted on actions and decisions that are proposed for implementation several years after issuance of the new license, and after post-construction monitoring and evaluations are completed. The Service supports the formation of these groups, as proposed in the Aquatic Settlement Agreement and the FLA, and recommends that representatives from the Aquatic SWG and the TWG meet as necessary to provide technical input for fish and wildlife issues related to license implementation.

PROPOSED PROJECT MODIFICATIONS

In its application for new license, the applicant proposes a number of protection, mitigation, and enhancement (PM&E) measures for the conservation and development of fish and wildlife resources. Elements of those proposals are outlined in Exhibit E of the Final License Application. Individual elements of the applicant's proposed environmental measures germane to the conservation of fish and wildlife resources are summarized below.

To address the project's impacts on aquatic resources, the applicant proposes to:

1. Continue to implement the specific fish passage measures, hatchery obligations, and tributary enhancements specified in the Wells AFA/HCP for the continued benefit of salmon and steelhead and bull trout;
2. Continue to operate and maintain the Project's anadromous fish passage facilities, including the juvenile fish bypass system and the adult fish ladder;
3. Implement the Wells White Sturgeon Management Plan (WSMP) that will include these measures:
 - a. Supplement the white sturgeon population in order to address Project effects, including impediments to migration and associated bottlenecks in spawning and recruitment;
 - b. Determine the effectiveness of the supplementation activities through a monitoring and evaluation program;
 - c. Determine the potential for natural reproduction in the Wells Reservoir in order to appropriately inform the scope of future supplementation activities;
 - d. Adaptively manage the supplementation program as warranted by the monitoring results;
 - e. Evaluate whether there is biological merit to providing safe, timely, and efficient adult upstream passage; and
 - f. Identify white sturgeon educational opportunities that coincide with WSMP activities.
4. Implement the Wells Pacific Lamprey Management Plan that will include these measures:
 - a. Identify and address any adverse Project-related impacts on passage of adult Pacific lamprey;
 - b. Identify and address any Project-related impacts on downstream passage and survival and rearing of juvenile Pacific lamprey; and
 - c. Participate in the development of regional Pacific lamprey conservation activities.

5. Implement the Wells Bull Trout Management Plan (BTMP) that will include these measures:
 - a. Operate the upstream fishways and downstream bypass systems in a manner consistent with the Wells AFA/HCP;
 - b. Identify any adverse Project-related impacts on adult and sub-adult bull trout passage;
 - c. Implement reasonable and appropriate options to modify the upstream fishway, downstream bypass, or operations if adverse impacts on bull trout are identified and evaluate the effectiveness of these measures;
 - d. Periodically monitor for bull trout entrapment or stranding during low Wells Reservoir elevations;
 - e. Participate in the development and implementation of the Service's Bull Trout Recovery Plan including information exchange and genetic analysis. Should bull trout be delisted, the Aquatic SWG will re-evaluate the needs and objectives of the BTMP; and
 - f. Identify any adverse impacts of Project-related hatchery operations on adult and sub-adult bull trout.

6. Implement the Wells Resident Fish Management Plan (RFMP) that will include these measures:
 - a. Continue to provide additional benefits to resident fishery resources in the Project as a result of the continued implementation of the Wells AFA/HCP, Predator Control Programs, and Land Use Policy activities;
 - b. In year two and every ten years thereafter during the term of the new license term, the applicant will conduct a resident fish study to determine the relative abundance of the various resident fish species found within the Project. The study objectives will focus on: (1) identifying whether there have been major shifts in the resident fish populations resulting from the implementation of the White Sturgeon, Bull Trout, Pacific Lamprey, and Aquatic Nuisance Species (ANS), management plans, and (2) collecting information on resident predator fish populations found within the Wells Reservoir. The results of this study may be used to inform the implementation of activities for the other Wells aquatic resource management plans (ANS, bull trout, Pacific lamprey, and white sturgeon) and the Wells AFA/HCP predator control activities;
 - c. If any statistically significant adverse changes to native resident fish populations of social, economic, and cultural importance are identified, and are not caused by and cannot be addressed through the implementation of other aquatic resource management plans or activities (white sturgeon, Pacific lamprey, bull trout, ANS, Wells AFA/HCP, predator control), reasonable and appropriate implementation measures to address negative changes, if any, will be undertaken by the applicant; and,

- d. In response to proposed major changes in Wells Dam operations requiring FERC approval, the applicant will assess the potential effects, if any are identified, on Project habitat functionally related to spawning, rearing, and migration of native resident fish, in order to make informed management decisions towards successful implementation of the RFMP. The applicant will implement reasonable and appropriate measures to address any effects on social, economic, and culturally important native fish species.
7. Implement the Wells Wildlife and Botanical Management Plan that will include these measures:
 - a. Protect and enhance rare, threatened, and endangered (RTE) wildlife species' habitat on Wells Project lands;
 - b. Protect RTE botanical species from land-disturbing activities and herbicide use;
 - c. Conserve habitat for species protected by the federal Endangered Species Act (ESA), Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act, on Wells Project lands;
 - d. Protect native habitat on Project lands for continued use by native species;
 - e. Maintain productive wildlife habitat on the Cassimer Bar Wildlife Management Area;
 - f. Control noxious weeds on Wells Project lands; and
 - g. Implement the 230 kV Transmission Line Corridor Avian Protection Plan
 8. Implement the Wells Avian Protection Plan that will include the following protocols:
 - a. Reporting Protocol: All avian mortalities found in the transmission line corridor will be reported to the appropriate parties;
 - b. Nest Management Protocol: Douglas PUD will implement a Nest Management Protocol in compliance with federal and state bird protection laws;
 - c. Tree Removal Protocol: Tree removal as part of transmission corridor maintenance will only occur between August 31 and January 31 to protect migratory birds; and
 - d. Training Protocol for Avian Protection: All appropriate utility personnel will be trained to evaluate avian issues when performing maintenance on the transmission lines and corridor.

RESOURCE MANAGEMENT PLANS, GOALS, AND OBJECTIVES

The Service reviews hydropower projects in accordance with the goals and objectives of applicable national and regional resource management plans. National plans relevant to fisheries management and restoration in the project area include *Fisheries USA*, the *Action Plan for Fishery Resources and Aquatic Ecosystems*, and the Service's national strategic plan for restoring fisheries titled, *Conserving America's Fisheries: The Fisheries Program Vision for the Future*. Regional plans relevant to the relicensing of the Project are the Service's *Pacific Region: Fisheries Program Strategic Plan* (USFWS 2004a), *Bull Trout Recovery Plan* (USFWS 2002b), the *Wells*

Anadromous Fish Agreement and Habitat Conservation Plan (Douglas PUD 2002), and the Northwest Power and Conservation Council's (NPCC) *Upper Middle Mainstem (UMM) Columbia River Subbasin Plan* (NPCC 2004). State plans include management plans adopted by the Washington Fish and Wildlife Commission and administered by the WDFW.

A primary goal of the Service is to establish safe and effective fish passage, restoration, and habitat conservation for native fish at the Project's facilities that is consistent with the management goals detailed in these plans and policies. If the project is operated according to the recommendations contained herein, the Service concludes that the Wells Project would be consistent with the resource management plans discussed below.

Fisheries USA

On February 4, 1993, the Commission accepted the Service's recreational fisheries policy entitled *Fisheries USA* as a comprehensive plan pursuant to section 10(a) of the Federal Power Act (FPA). The policy identifies the Service's commitment to protect the quality and quantity of the Nation's recreational fisheries and to optimize opportunities for people to enjoy these recreational fisheries (USFWS 1989). The nation's recreational fisheries are socially and economically significant, and the future demand for recreational fishing opportunities is projected to increase. Actions that can be taken to meet this increasing demand include ensuring full consideration of recreational fisheries in water resource projects, restoring or enhancing depleted or declining fisheries, and optimizing productivity of existing fisheries through habitat and water quality improvements. The Service concludes that the Wells Project would be consistent with *Fisheries USA* plan if the Project is licensed and operated consistent with our recommendations, conditions, and prescriptions.

Action Plan for Fisheries Resources and Aquatic Ecosystems

On May 19, 1994, the Service implemented its *Action Plan for Fisheries Resources and Aquatic Ecosystems* (Action Plan) (USFWS 1994). The Action Plan presents a comprehensive ecosystem- and watershed-based conservation, restoration, and enhancement program for fisheries management focusing on the management of aquatic communities and wild populations. The Action Plan is implemented through cooperative efforts and partnerships with others, including but not limited to state, local, and Tribal governments. The Action Plan priorities include conserving self-sustaining native fish populations for the maintenance of productive fisheries in healthy aquatic habitats; maintaining healthy wild fish populations through genetic diversity, harvest management, habitat improvements, and judicious use of hatchery stocks; developing and encouraging partnerships between governments and the private sector to provide greater opportunities for conserving and enhancing aquatic ecosystems and for advancing their stewardship; increasing public education and outreach to develop an informed and involved citizenry; serving as a catalyst in ensuring that aquatic resource problems are quickly identified, corrective steps are organized, and action is agreed upon, coordinated, and addressed; and assuring long-term ecosystem health while supporting sustainable development of aquatic ecosystems, fishery resources, and compatible recreation, cultural, and other uses. Components of the Action

Plan are the restoration and protection of the quantity and quality of water available for fishery resources and aquatic ecosystem integrity. High priority actions intended to accomplish this component include the establishment, maintenance, and protection of instream flows in important fishery habitats and the recommendation of effective approaches for fish passage for hydroelectric and other water development projects. The Service concludes that the Wells Project would be consistent with the Action Plan if the Project is licensed and operated consistent with our recommendations, conditions, and prescriptions.

Conserving America's Fisheries - The Fisheries Program Vision for the Future

This National Strategic Plan (Plan) was developed by the Service in December 2002, in collaboration with the Sport Fishing and Boating Partnership Council, which represents a wide range of fishing and aquatic conservation interests across the country (USFWS 2002a). The Plan presents a comprehensive ecosystem- and watershed-based conservation, restoration, and enhancement program for fisheries management focused on the management of aquatic communities, recreationally important fisheries, and native fish populations. The Plan has been "stepped down" to the Pacific Region of the Service in the form of a *Pacific Region: Fisheries Program Strategic Plan* (USFWS 2004a). Both the national and regional strategic plans are implemented through cooperative partnerships with state, region, local, and tribal governments, non-governmental organizations, watershed councils, and a variety of businesses and private interests. The regional strategic plan priorities include conserving self-sustaining native fish populations for the maintenance of productive fisheries in healthy aquatic habitats; maintaining healthy native fish populations through genetic diversity, harvest management, habitat improvements, and judicious use of hatchery stocks; developing and encouraging partnerships between governments and the private sector to provide greater opportunities for conserving and enhancing aquatic ecosystems, recreation, and for advancing their stewardship; increasing public education and outreach to develop an informed and involved citizenry; serving as a catalyst in ensuring that aquatic resource issues are quickly identified, corrective steps are organized, and action is agreed upon, coordinated, and addressed; and assuring long-term ecosystem health while supporting sustainable development of aquatic ecosystems, fishery resources, and compatible recreational, cultural, and other uses.

Among the several components of the strategic plan are the restoration and protection of the quantity and quality of water available for fishery resources and aquatic ecosystem integrity. High priority actions intended to accomplish this component include the establishment, maintenance, and protection of instream flows in important fishery habitats and the recommendation of effective approaches for fish passage for hydroelectric and other water development projects. The Service concludes that the Wells Project would be consistent with our National and Regional Strategic Plans if the Project is licensed and operated consistent with our recommendations, conditions, and prescriptions.

Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP)

The Wells AFA/HCP is intended as a comprehensive and long-term management plan to protect five species of Columbia River salmon and steelhead (Plan Species) in compliance with the ESA. Species covered by the Wells AFA/HCP include spring and summer/fall Chinook salmon, sockeye salmon, coho salmon, and steelhead. On June 21, 2004, the Commission approved the Wells AFA/HCP and amended the Wells license to incorporate its terms. The Commission concluded that the Wells AFA/HCP was in the public interest because it would put into place a program likely to assist in the recovery of listed salmon and steelhead. The Service is a party and signatory to the Wells AFA/HCP.

U.S. Fish and Wildlife Service Draft Bull Trout Recovery Plan

In 2002, the Service developed a *Draft Recovery Plan for Bull Trout* (USFWS 2002b). In 2005, the Service, with assistance from the Upper Columbia River Recovery Unit Team, revised and updated the Draft Bull Trout Recovery Plan, including Chapter 22 Upper Columbia River Recovery Unit, Washington, creating what is hereafter referred to as the Bull Trout Recovery Plan (USFWS 2005). The Upper Columbia River Recovery Unit Team is comprised of state and federal agencies and other parties interested in the management of bull trout in the Columbia River Basin. The Upper Columbia River Recovery Unit contains the Wenatchee, Entiat, and Methow core areas. The Bull Trout Recovery Plan's goal is "to ensure long-term persistence of self-sustaining, complex, interacting groups of bull trout distributed throughout the species' native range so that the species can be delisted." To achieve this goal, the plan identifies the following recovery objectives for bull trout in the Upper Columbia River Recovery Unit:

- Maintain current distribution of bull trout and restore distribution in previously occupied areas within the Upper Columbia Recovery Unit.
- Maintain stable or increasing trends in abundance of bull trout.
- Restore and maintain suitable habitat conditions for all bull trout life history stages and strategies.
- Conserve genetic diversity and provide opportunity for genetic exchange.

The Bull Trout Recovery Plan identified several passage and habitat-related threats to bull trout recovery in the Upper Columbia Recovery Unit. The Project occurs in the Columbia River DPS. Within the Columbia River DPS, the recovery team has identified 22 recovery units (USFWS 2002c). Recovery Unit teams were established to provide specific information on the decline of the species and actions necessary to recover bull trout. The Project area is included in the Upper Columbia Recovery Unit matrix.

U.S. Fish and Wildlife Service Pacific Lamprey Conservation Initiative

The Pacific Lamprey Conservation Initiative is an effort led by the Service to facilitate communication and coordination relative to the conservation of Pacific lampreys throughout their range. The number of adult Pacific lamprey entering the Columbia River Basin have declined

dramatically over the past 30 to 40 years concurrent with the construction and operation of mainstem and tributary dams, irrigation and agricultural projects, urban development, and habitat loss (Close *et al.* 1995; Moser and Close 2003; Kostow 2002). Lampreys are an important cultural resource to the tribes inhabiting the basin and they are the target of restoration efforts by state and federal agencies. For more information see http://www.fws.gov/pacific/fisheries/sp_habcon/lamprey/. The goal of the initiative is to develop a Pacific Lamprey Conservation Plan that will lead to restored Pacific lamprey populations and improvement of their habitat. This includes efforts to identify actions and measures to address threats, restore habitat, and improve the distribution and abundance of Pacific lampreys when implementing instream projects, including, hydroelectric project development.

Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin

The Nez Perce, Umatilla, Yakama, and Warm Springs tribes developed this plan for restoration of Pacific lamprey to numbers adequate for tribal use and ecological health of the region (Nez Perce *et al.* 2008).

The emphasis of this Tribal Restoration Plan is to provide an explicit and timely path, including specific actions that can be implemented in the next ten years for both the mainstem Columbia and Snake Rivers and associated tributary streams. The ultimate goal is restoration of Pacific lamprey to levels supportive of their unique cultural and ecosystem values. Primary objectives include (1) improving mainstem passage and survival, (2) improving tributary habitat conditions, (3) implementing translocation/re-introduction actions and (4) continuing research to improve the collective understanding of their life history and biology.

Upper Columbia White Sturgeon Recovery Plan

This recovery plan describes objectives, targets, strategies, measures, and a schedule for arresting the decline of white sturgeon in the Canadian and U.S. portions of the Columbia River upstream from Grand Coulee Dam (Upper Columbia White Sturgeon Recovery Initiative 2002). The goals of the plan are to ensure the persistence and viability of naturally reproducing populations of the white sturgeon, and to restore opportunities for beneficial use, if feasible. Viability refers to the ability to sustain a diverse, naturally reproducing population as a functional component of the river ecosystem. The efficacy of restoration of natural spawning and rearing habitats will determine whether natural populations can support subsistence or recreational fishing. To provide a context for recommended recovery actions, this plan also reviews the biology and status of upper Columbia River white sturgeon, reasons for decline, and existing conservation measures. While this plan does not incorporate the Wells Project, it does provide an appropriate long-term management strategy for rebuilding the white sturgeon population that utilizes the project area. The applicant's proposed White Sturgeon Management Plan will be used to inform this recovery plan.

Upper Middle Mainstem (UMM) Columbia River Sub-Basin Plan

This plan was prepared for the Northwest Power and Conservation Council in conjunction with the Bonneville Power Administration (NPCC 2004) to aid in the recovery of species listed under the ESA. Through recommendations made in the plan, the UMM seeks to restore and maintain healthy indigenous fish and wildlife populations and their ecosystems to support sustainable harvests, cultural values, and non-consumptive benefits through local, state, Tribal, and Federal partnerships. The UMM compiles known and existing data on anadromous and resident fish, wildlife, and their habitats within the upper middle mainstem Columbia River sub-basin. It also provides data on land use, human population patterns, and overall resource management objectives. The UMM was approved for adoption into the NPCC's Fish and Wildlife Program in December 2004.

Washington State Wild Salmonid Policy

The Wild Salmonid Policy was developed jointly by Washington Fish and Wildlife Commission and the Western Washington Treaty Tribes in response to the depressed status of wild salmonid populations in Washington State (WDFW 1997). The goal of the policy is to protect, restore, and enhance the productivity, production, and diversity of wild salmonids and their ecosystems to sustain ceremonial, subsistence, commercial, and recreational fisheries; non-consumptive fish benefits; and other related cultural and ecological values. The policy identifies causes for the decline of salmon and trout populations including habitat loss; overfishing; poor ocean survival conditions; unwise hatchery practices; institutional gridlock of competing policies; lack of coordination and accountability; and unrealistic expectations of technology. The Fish Access and Passage Policy section sets forth several goals directly dealing with the effects of hydropower on fisheries resources including, but not limited to, providing and maintaining safe and timely pathways for all salmonid life stages to all useable wild salmonid habitat in fresh and marine waters, and ensuring that salmonids are protected from injury or mortality from diversion into artificial channels or conduits (irrigation ditches, turbines, etc.).

Spirit of the Salmon

The Columbia River treaty tribes have developed a fishery recovery plan called *Wy-Kan-Ush-Mi Wa-Kish-Wit* or *Spirit of the Salmon* (Nez Perce *et al.* 1995). This plan is the Columbia River anadromous fish recovery plan of the Warm Spring, Yakama, Umatilla and Nez Perce tribes. The plan covers the following fish that spawn in areas above Bonneville Dam (including the Snake River in Idaho): Chinook, sockeye, steelhead, Coho, and chum salmon; Pacific lamprey; and white sturgeon. The geographic scope of the plan includes the Columbia River Basin and Pacific Ocean regions where these fish migrate and wherever activities occur that directly affect them.

The plan's objectives are to halt the decline of salmon, lamprey and sturgeon populations above Bonneville Dam within 7 years. Additional objectives include:

- Rebuild salmon populations to annual run sizes of four million above Bonneville Dam within 25 years in a manner that supports tribal ceremonial, subsistence and commercial harvests.
- Increase lamprey and sturgeon to naturally sustaining levels within 25 years in a manner that supports tribal harvests.

To achieve these objectives, the plan emphasizes strategies and principles that rely on natural production and healthy river systems. Simply stated, the plan's purpose is to put healthy fish stocks back in the rivers and protect the watersheds where fish live.

AQUATIC AND TERRESTRIALS RESOURCES IN THE PROJECT AREA

Anadromous Salmonids

Five species of anadromous salmonids are found in the Wells Reservoir. These salmonids include the Upper Columbia River (UCR) spring-run Chinook salmon (spring Chinook), UCR summer/fall-run Chinook salmon (summer/fall Chinook), Okanogan River sockeye salmon (sockeye), UCR steelhead (steelhead), and hatchery origin coho salmon (coho).

The timing of adult migration, spawning, incubation, hatching emergence, juvenile rearing, smolt outmigration, and ocean residence periods differs among salmonid species and some of these differences have been used to separate several species into different races/demes (NMFS 2002).

With the exception of the summer/fall Chinook, anadromous salmonids utilize Wells Reservoir primarily as a migratory corridor; this differs considerably from some resident species that may depend upon the habitats in the Wells Project for all their life history needs. Summer/fall Chinook are known to extensively utilize the Wells Reservoir for rearing as well as migration (Douglas PUD 2010; Exhibit E). All of these species are native to the Columbia River basin and are considered game fish species and tribal trust resources.

Pacific Lamprey

Returning adult Pacific lampreys have been counted at Wells Dam since 1998. Between the years of 1998 and 2007, the number of lamprey passing Wells Dam annually has averaged 326 fish and ranged from 21 fish in 2006 to 1,417 fish in 2003 (Table 1). In addition to the overriding condition that Pacific lamprey numbers are declining in the Columbia River system, the relatively small number of adult lamprey observed at Wells Dam may be attributed to fact that the Project is over 500 miles upstream from the Pacific Ocean as well as the fact that Wells Dam is the last of nine passable dams on the mainstem Columbia River.

Adult lamprey pass Wells Dam from early July until late November with peak passage times between mid-August and late October. In all years since counting was initiated, Pacific lamprey counts at the Project's east fish ladder were greater than at the west fish ladder except for 2007. It is important to note that, historically, counting protocols were designed to assess adult salmonids

and did not necessarily conform to lamprey migration behavior (Moser and Close 2003). Traditional counting times for salmon did not coincide with lamprey passage activity which occurs primarily at night; the erratic swimming behavior of adult lamprey also makes them inherently difficult to count (Moser and Close 2003). Beamish (1980) also noted that lamprey overwinter in freshwater for one year prior to spawning. Consequently, lamprey counted in one year may actually have entered the system in the previous year (Moser and Close 2003) which confounds calculating annual returns back into the Columbia River Basin.

In addition to salmonid-specific counting protocols, adult fishway facilities have been constructed specifically for passage of salmonids. Recent research has identified areas such as picketed lead structures downstream of fish count windows that adult lamprey may access to bypass count stations and avoid being enumerated (LGL and Douglas PUD 2008b). It is unknown to what degree lamprey behavior and methodological and structural concerns are reflected in Columbia River lamprey passage data. However, it is important to consider such caveats when examining historic lamprey count data at Columbia River dams, including Wells Dam (Table 1).

Table 1. Adult Pacific lamprey upstream counts at Wells Dam for east and west fish ladders, 1998-2007.

Fish Ladder	Year									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
East	174	47	96	153	226	724	263	151	13	17
West	169	26	59	106	117	694	140	64	8	18
Total	343	73	155	259	343	1418	403	215	21	35

White Sturgeon

From 2001-2003, the applicant implemented a study to examine the white sturgeon population within the Project. Prior to the implementation of this study, little information on white sturgeon was available for the Wells Reservoir. Additionally, information from previous studies in reservoirs upstream and downstream of the Project has supported the existence of a population. The primary objectives of the applicant's study were to provide basic information on the population abundance, age structure, size, and growth of Project white sturgeon; analyze movements of white sturgeon within the Reservoir; and compare the data collected during this study with data collected during assessments at other projects (Jerald 2007; p. 2).

In general, the results of the white sturgeon study in the Wells Reservoir were similar to the results of a study conducted in the neighboring Rocky Reach Reservoir in 2001-2002 (Golder Associates, Ltd. 2003). Results indicate that the Wells Reservoir adult sturgeon population is estimated at 13-217 fish. These results are similar to the Rocky Reach assessment which estimated sturgeon numbers to be from 50-115 fish. Both studies captured similar numbers of sturgeon using similar amounts of effort and similar capture techniques (Rocky Reach = 18 sturgeon, Wells = 13 sturgeon). Radio-telemetry data from both studies suggest that very little activity occurs during the overwintering period. Wells Reservoir sturgeon ranged in age from 6 to 30 years old; while Rocky

Reach sturgeon ranged in age from 7 to 50 years old. Both studies suggest that some recruitment into each population is occurring given the presence of juvenile fish in their respective reservoirs (Golder Associates, Ltd. 2003; Jerald 2007).

Resident Fish

Several assessments have been conducted over the last 35 years documenting the resident fish species composition within the project area. Dell *et al.* (1975) observed that the most abundant resident fish species in the Wells Reservoir were northern pikeminnow, threespine stickleback, and suckers. They also determined that mountain whitefish and pumpkinseed were the most abundant resident game fish, although these two species accounted for less than two percent of the total 32,289 fish sampled. Overall, 27 species of resident and migratory fish were identified in the study area.

McGee (1979) noted that chiselmouth, red-sided shiners, and large-scale suckers were the most abundant non-game fish captured during the Wells Reservoir surveys while pumpkinseed were the most abundant recreational fish caught. Similar sampling design and methodology were employed in order to ensure that results of the study were comparable with past observations. In total, 2,480 fish were collected during the study using live traps, beach seines, and angling. Twenty of the 27 known species previously trapped in other mid-Columbia reservoirs were present in the Wells Reservoir (Dell *et al.* 1975).

In 1994, the applicant conducted an updated Wells Reservoir resident fish assessment (Beak 1999). An effort was made to implement a sampling design similar to the two previous studies so as to be consistent and allow comparisons with past results. In total, 22 species of fish were identified with 5,657 fish captured using beach seines and 716 fish observed via diving transects. Beak (1999) reported suckers as the most abundant resident fish captured in beach seine sampling in the Wells study area. These species represented 41 percent of the beach seining catch and 46 percent of the underwater dive survey count. Other abundant species in the beach seine catch were bluegill (32 percent), northern pikeminnow (10 percent), peamouth (6 percent), and carp (5 percent). Fifteen other species representing the remaining 7 percent of the total catch 3,783 fish.

Wildlife and Botanical Resources

Wells Project lands provides habitat for a diverse range of wildlife. Riparian plant communities within the Wells Project support more wildlife species than any other vegetation type and provide important habitat for migratory and nesting birds, mammals, reptiles, and amphibians. Shrub steppe plant communities provide habitat for birds, reptiles, and mammals adapted to this dry, open habitat (EDAW 2006a; pp. 23-26).

Wildlife surveys of the Wells Project were conducted in 2005 (EDAW 2006a) and 2008 (Parametrix, Inc. 2009). These studies documented wildlife found on Wells Project lands associated with the Wells Reservoir (EDAW 2006a) and the Wells Project 230 kV transmission corridor (EDAW 2006b, Parametrix, Inc. 2009). Additional surveys by Parametrix, Inc. (2009)

included transmission corridor raptor and corvid nesting surveys, Columbian sharp-tailed grouse and greater sage-grouse surveys, and surveys for evidence of avian collisions with the transmission line and associated structures. Survey efforts confirmed the presence of 204 wildlife species in the Project, including 161 birds, five amphibians, nine reptiles, and 29 mammals.

Botanical surveys of the Wells Project were conducted in 2005 (EDAW 2006c) and 2008 (Parametrix, Inc. 2009) and included vegetation mapping as well as surveys for special status plants and noxious weeds. These surveys documented 323 species of plants onsite, including four state special-status botanical species and 45 non-native species, 10 Class B weeds and nine Class C weeds as discussed below. A comprehensive list of the plant species occurring in the Wells Project is provided in Appendix E-10 of the applicant's FLA (Douglas PUD 2010).

State special-status botanical species include plant species that are identified as endangered (E), threatened (T), sensitive (S), or under review for potential listing (R1 and R2) by the WDNR Natural Heritage Program (WNHP 2009). State and federal natural resource agencies, including the Service, WDFW and WNHP, were contacted in August 2005 for information regarding the presence of federal- and state-listed species as well as species and habitats of special concern in the Project area.

Based on these agency contacts, a review of species habitat requirements and distribution, and information from a rare plant survey conducted for the nearby Rocky Reach Hydroelectric Project, 41 state-listed species (federally-listed species excluded) were identified as having the potential to occur in the vicinity of the Wells Project area and were targeted during the 2005 RTE botanical survey efforts (Calypso Consulting 2000; EDAW 2006c; NatureServe 2008; WNHP 2005, 2009; Parametrix, Inc. 2009).

Surveys of the Wells Project reservoir documented occurrences of three state-listed special-status plants: little bluestem (*Schizachyrium scoparium*), chaffweed (*Anagallis minima*), and northern sweetgrass (*Hierochloe hirta*) (EDAW 2006c, p. 1). Brittle prickly-pear (*Opuntia fragilis*) was also identified at the time of the survey, but the plant was recently removed from the list of plants tracked by the WNHP (WNHP 2009). None of these species are afforded specific regulatory protections by Washington State. Surveys of the transmission line corridor documented one occurrence of Thompson's clover (*Trifolium thompsonii*) (Parametrix, Inc. 2009).

No Class A weeds were documented during survey efforts. Surveys of lands associated with the Wells Reservoir documented 99 occurrences of four Class B-designated weed species: purple loosestrife, Dalmatian toadflax, leafy spurge, and perennial pepperweed. Two Class B weeds, Russian knapweed and diffuse knapweed, were common in upland or transitional upland/wetland habitats. Two Class C weeds, reed canarygrass and yellow flag, were noted as common in the Project wetlands and along Wells Reservoir shorelines.

Threatened and Endangered Species

Bull Trout

Two sets of studies have provided the majority of the information on bull trout migratory behavior in the mid-Columbia River. The first study was the 2001-2004 mid-Columbia River radio telemetry study undertaken by the three mid-Columbia public utility districts (Chelan, Grant, and Douglas) to evaluate the movement and status of bull trout in their respective project areas. The goal of the study was to monitor the movements and migration patterns of adult bull trout in the mid-Columbia River using radio telemetry. From 2001 to 2003, bull trout were collected from the Wells, Rocky Reach, and Rock Island dams, radio-tagged, and monitored through 2004. The second series of studies took place during 2005-2008 and were associated with the implementation of the applicant's Bull Trout Monitoring and Management Plan (BTMMP) (Douglas PUD 2004), a product of the Service's Biological Opinion on the issuance of the Wells AFA/HCP. The goals of the 2005-2008 studies included the measurement of incidental take for migratory and sub-adult bull trout passing through the Wells Project and the collection of stock identification information from the Methow River.

Following the Commission's approval of the Wells AFA/HCP in 2004, the BTMMP was developed in 2005. The BTMMP was prepared and implemented to meet monitoring requirements stipulated in the Service's biological opinion (USFWS 2004b) regarding the issuance of the Wells AFA/HCP. The goal of the BTMMP was to identify, develop, and implement measures to monitor and address Project-related impacts on bull trout associated with the operations of the Project and associated facilities (Douglas PUD 2004).

One component of the plan was to conduct additional telemetry assessments from 2005 through 2008 which provided additional telemetry information on bull trout movements in the Project and documents rates of incidental take associated with the operation of Wells Dam (LGL and Douglas PUD 2008a). Through the implementation of the measures outlined in the BTMMP, six years of tagging, and eight years of monitoring, the applicant has not identified any project-related impacts to adult or sub-adult bull trout from passage through the Project, nor by stranding/entrapment due to lowering of the reservoir elevation. The applicant has also determined there are no apparent correlations between Project operations and downstream passage events, and that there is no upstream movement of adult bull trout through the Wells Dam fishways during the off-season period of November 16 through April 30. Bull trout captured and tagged at Wells Dam were radio-tracked to the Methow and Entiat Core Areas during spawning periods, and have also demonstrated movement between these systems by successfully passing upstream or downstream through Wells Dam (LGL and Douglas PUD 2008a, pp. 1-3).

Results of the telemetry studies identified several notable bull trout life history characteristics. Within the mid-Columbia Basin, bull trout utilized the mainstem Columbia River as a migratory corridor as data indicate that tagged fish passed through the mid-Columbia projects and the Wells Reservoir (BioAnalysts, Inc. 2004, p. 19). Within the Wells Project area, the majority of radio-tagged bull trout were destined for Twisp and Methow rivers, located upstream of Wells Dam;

however, some fish also migrated into the Entiat River, which is located downstream of Wells Dam. Most of the radio-tagged bull trout passed Wells Dam during the months of May and June (BioAnalysts, Inc. 2004, p. 19). Adults generally concluded spawning in the Methow by late October; some bull trout were observed returning to Wells Reservoir by mid-December. Bull trout did not select the Okanogan River system in both telemetry studies; one bull trout entered the Okanogan for a short period before leaving to enter the Methow system.

In addition to telemetric assessments, bull trout have been observed and counted during passage at Wells Dam, since 1998. Bull trout upstream passage in the Project's fish ladders is monitored from May 1 through November 15. In recent years, the applicant has initiated an experimental winter count for bull trout (November 16 through April 30). To date, no bull trout have been observed in the fish ladders during the experimental winter monitoring period. Counts of bull trout at the Project from 2000 through 2008 are presented below and two additional downstream projects (Table 2). The table shows the relatively small number of bull trout passing over Wells Dam as compared to the other two projects.

Table 2. Summary of bull trout upstream passage at Wells Dam fish ladders (1998-2008).

Project	Year											Total	Avg.
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Rocky Reach	83	128	216	204	194	246	161	155	142	77	100	1279	155
Rock Island	67	61	87	82	84	102	114	69	35	46	36	783	71
Wells	17	49	93	108	76	53	47	49	100	65	43	700	64

The Department recommends that the Commission, upon issuance of any new license during this proceeding, retain by means of a specific ESA section 7 consultation reopener/reinitiation provision and other appropriate reservations of authority (including authority to require license amendments or project modifications to comply with the ESA following reinitiation of ESA Section 7 consultation at the request of the Service) sufficient discretionary involvement or control with respect to project construction, operation, maintenance, and modification under each new license, or any amendments thereto, so as to ensure full compliance with the requirements of the ESA, with respect to the carrying out of such actions during the term of the new license.

PROJECT IMPACTS TO FISH AND WILDLIFE RESOURCES

Anadromous Salmonids

Over the past several decades, many scientific studies have focused on the effects of the Columbia River system hydropower projects on anadromous fish. Some of the studies have focused specifically on the three mid-Columbia River projects, while others have focused on the overall system, on other projects, or on particular effects. These studies have helped determine the ways

hydropower projects impact fisheries, and they have shaped the action needed to reduce impacts. However, the available studies do not always provide definitive assessments of the full range and magnitude of project impacts because different methods, timeframes, and locations were used. A full description of these studies as they relate to the Project can be found in the applicant's FLA (Douglas PUD 2010).

The hydroelectric projects on the Columbia River, including the Project, delay migrating fish; which affects migration speed and the timing of both juvenile and adult salmon and steelhead movements. Juveniles can be killed, injured, or disoriented when they pass downstream through dams.

The major juvenile fish passage routes are:

- Through a turbine;
- Over a spillway or through a sluiceway (an artificial channel for carrying excess water);
- Through a juvenile fish bypass system; or
- Through ancillary dam facilities, such as the adult fishway facilities.

Direct or indirect effects to fish can result from fish using any of these project passage routes. Direct effects are a consequence of physical injuries that may be incurred during passage, resulting in immediate or delayed mortality. Indirect effects result from debilitated, disoriented, or stunned fish being exposed to additional sources of mortality, such as predation (Douglas PUD 2010, Exhibit E).

Adults migrating upstream can also be impacted. Although under normal conditions it is likely that few adults are directly killed when they travel upstream past the dams, each dam can potentially delay fish at fishways. Delays in fish passage may require fish to expend more energy to pass, increasing their exposure to high concentrations of dissolved gases caused by spilling water at the dams.

Adult salmon and steelhead may also fall back through the dam, resulting in increased delays and potential injury. Additionally, a percentage of adult salmon and steelhead fail to enter project fishways and pass upstream. Even with the latest fish tagging technologies however, it is not possible to determine if the failure of fish to pass a project is due to specific problems with the fish ladders. This is because some of the tagged fish detected at a project may actually be returning to downstream hatcheries or a natural spawning area.

Through the implementation of the Wells AFA/HCP, the applicant concludes that all Project-related effects to anadromous salmonids have been fully mitigated through the achievement of No Net Impact (NNI). A major feature of the Wells AFA/HCP is what is termed a "phased implementation plan" to achieve the survival standards. The Wells AFA/HCP has three phases within the phased implementation plan. Under Phase I, the applicant implemented: (1) juvenile and adult operating plans and criteria to meet the survival standards; and (2) a monitoring and evaluation program to determine compliance with the NNI standards. Following the completion of

the three year monitoring and evaluation program in Phase I (Douglas PUD 2010), the Wells AFA/HCP Coordinating Committee determined that the pertinent survival standards had been achieved (Douglas PUD 2010).

Pacific Lamprey

Research to better understand adult lamprey passage behavior was initiated at the Project in 2004 (Nass *et al.* 2005). Subsequent investigations of lamprey behavior and passage efficiency took place in 2007 and 2008 (LGL and Douglas PUD 2008b; Robichaud *et al.* 2009). The 2007-2008 studies identified the following:

- Entrance efficiencies ranged from 14% in 2007 to 33% in 2008, for a two year average of 27%;
- Lower fishway passage efficiency was 33% over both years although 2008 trapping operations that resulted in complete exclusion of passage in the middle portion of the fishway may have significantly biased these results;
- Upper fishway passage efficiency was 100% and passage times were relatively fast (median passage times = 6.7 h) indicating that little or no passage impediments exist in this portion of the Wells fishways;
- The majority of lamprey may be uncounted at Wells Dam as 73% (11/15) of radio-tagged lamprey ascending the upper fishway bypassed the adult counting stations, as they passed through the fishway;
- No fallbacks were observed for lamprey exiting the adult fishway over all study years including in 2004;
- Due to low sample sizes of lamprey passing Wells Dam, only two unobstructed complete passage events were recorded (31.5 h and 32.7 h). These passage times are excellent compared to studies at other Columbia Basin dams where median passage times ranged up to 7.6 days (Johnson *et al.* 2010, p. 3);
- Overall, results indicate that potential passage impediments are restricted to the adult fishway entrance and lower adult fishway.

Despite high passage rates and passage efficiency through the upper portions of Wells Project fishways, radio-tagged adult lampreys exhibit difficulty negotiating fishway entrances at Wells Dam. This impediment has been attributed to the hydraulic conditions at fishway entrances caused by the head differential between the fishway collection gallery and the tailrace. The standard head differential at Wells Dam fishways is 0.48 m (1.5 ft) \pm 0.06 m (0.2 ft). Average velocities (~3.0 m/s) currently experienced in the fishway entrances at Wells Dam are well above the known swimming capability of adult lampreys (Robichaud *et al.* 2009; p. 35). Swimming performance of adult lampreys has been reported at 0.9 m/s (sustained swimming) to 2.1 m/s (burst speeds) (Mesa *et al.* 2003; Daigle *et al.* 2006). High velocity conditions are typical of fishway entrances in dams throughout the Basin, and have been identified as a key area for improving passage efficiency of adult lampreys through hydroelectric projects.

In an attempt to remedy this passage impediment for adult Pacific lamprey, the applicant utilized Dual-frequency Identification Sonar (DIDSON) to passively assess adult Pacific lamprey passage behavior in response to operational modifications in the Wells Dam fishway entrances in 2009 (Johnson *et al.* 2010). The results of this study suggest that: (1) some lampreys demonstrate exploratory behavior, in addition to rejections associated with fishway entrance velocities; (2) spatial and temporal DIDSON coverage (vertical coverage of the water column and diel timing of when the DIDSON units are operating, respectively) under the 2009 configuration did not capture all Pacific lamprey fishway entrance events; (3) reduced head differentials show promise in providing an environment conducive to upstream passage of adult Pacific lamprey; and (4) these operations do not negatively influence passage of adult salmon.

White Sturgeon

Beamesderfer *et al.* (1995, p. 869) suggests that the development of hydroelectric power generation facilities within the Columbia River Basin has had substantial negative impacts on white sturgeon. White sturgeon populations in the middle and upper Columbia River now reside in regulated and impounded reservoirs isolated between dams. All of these isolated populations experience complete and frequent recruitment failures that are likely related to river regulation, flooding of historical critical spawning and rearing habitats, increases in predators due to habitat alteration and/or introduction of exotic species, and pollution (Riemen and Beamesderfer 1990). At present, what little natural recruitment that does occur at the Wells reservoir is likely insufficient to maintain existing population levels (Jerald 2007, p. 41). As such, these populations will likely continue to decline in abundance to the point where they either become extirpated from the Project area or continue to persist at low, functionally non-sustaining levels that are dependent upon infrequent in-reservoir recruitment to gain reproductive adults or occasional immigration from adjacent populations.

Resident Fish

Ward and Ward (2004, p. 10) explain how the development and operation of Columbia River Basin hydroelectric facilities have contributed to the reduction in diversity and abundance of some native resident fish. Many kilometers of resident fish habitat have been inundated, with many shallow, free-flowing rivers converted to reservoirs. Ward and Ward (2004) further suggest that downstream entrainment, poor upstream passage at dams, and lost habitat connectivity contribute to this general decline in resident fish populations in the Columbia River Basin. Altered seasonal hydrographs and thermal regimes associated with hydroelectric development and operations also impact resident fish populations in the Columbia River Basin. Introductions and increased distribution of non-native fish species have likely contributed to the decline of some native resident fish species. Specifically, introduced fish species are relatively tolerant of elevated water temperatures, sedimentation, and organic pollution, attributes found in reservoirs that could allow introduced species to out-compete native species in marginal environments of the Columbia River Basin. For example, both McGee (1979) and Beak (1999) noted that in general, spiny ray species (centrarchids) were most abundant between RM 530 and 540 and in the lower Okanogan River. This unique area of the Wells Reservoir is shallow and broad, with slower water velocities, finer substrate, relatively warmer water temperatures, and higher turbidity (Beak 1999) and is conducive

to rearing spiny ray fish species, while excluding more streamlined fish that prefer fast-flowing water. Both surveys also found that the more streamlined resident fish species, such as chiselmouth and red-sided shiner (cyprinids), were most abundant downstream of RM 530 where water velocities increased, turbidity decreased, and the amount of shallow littoral habitat decreased.

Wildlife and Botanical Resources

Prior to the inundation of the Wells Reservoir, the wildlife typically found along the river included species adapted to river conditions. The thin strip of riparian vegetation along the banks would have provided nesting habitat for bird species that are adapted to nesting in and foraging from scrubby willows. The vegetation would also have provided shoreline cover for smaller mammals.

As a result of the filling of the project reservoir and related hydropower activities, the character of the surrounding shoreline has been altered from its original state. Plant species requiring relatively stable shoreline water levels are outcompeted by those more tolerant of shifting water levels. Invasive species tend to increase and woody plant species decrease. A low level of shoreline erosion occurs more frequently through water level fluctuations due to dam operations. Shoreline conditions vary considerably throughout the Wells Reservoir. The majority of the shoreline is stable and vegetated, while other areas have varying degrees of erosion. Erosion is an ongoing natural process in the Okanogan and Columbia rivers, making the influence of Wells Project operations difficult to evaluate along discrete riparian areas. Invasive weeds can also have an effect on wildlife and associated habitats in the project area. The applicant has worked closely with the Okanogan County Weed Board and adjacent landowners to control noxious weeds on the Wells Project lands, including its transmission line corridor.

Wildlife species that use shoreline habitats along the present-day reservoir include large and small terrestrial mammals, birds, amphibians, and reptiles. American White Pelican and sharp-tailed grouse are known to use the project lands and waters. Recreational boating and fishing on the reservoir can potentially disturb these birds by creating too much visual and auditory disturbance particularly when power boats move too close to the flock (Douglas PUD 2010, Exhibit E).

Changes in water surface levels of a foot or less are typical of many large lakes and rivers and would not be expected to impact associated wildlife or the vegetation on the Wells Reservoir. Impacts due to low reservoir levels for extended periods may have an effect on plants and wildlife, and may lower nesting success for Canada geese in the project area (Douglas PUD 2010, Exhibit E).

Project effects to avian fauna can be attributed to avian collisions with transmission lines. Surveys of the Project's transmission line corridor were conducted in 2008 to identify evidence of avian collisions with the transmission line and associated structures. The process of collecting avian collision data consisted of two components: (1) a focused survey of two segments determined likely to have waterfowl and water birds flying through, and (2) observations of avian carcasses incidental to all other wildlife and botanical studies along the entire corridor. Three bird

carcasses were found during focused surveys, and three other carcasses were found incidentally to other survey efforts.

Threatened and Endangered Species

Bull Trout

Based on the applicant's radio-telemetry data collected in 2001-2003, operations of hydroelectric facilities on the mid-Columbia River, including the Wells Dam, appear to have no negative effects on the survival of adult bull trout (BioAnalysts, Inc., 2004, p. 38; LGL and Douglas PUD 2008a, p. 40). No adult bull trout appeared to have been injured during upstream or downstream passage through the Wells Hydroelectric Project. Even so, the Project may affect the upstream and downstream movements of adult and sub-adult bull trout. Downstream passage routes available to bull trout include passage via the spillways during spill periods (generally between April 20 and August 15), the juvenile bypass system (JBS) comprised of one surface collector entrance (6 kcfs flow), the adult fish ladder, and turbine passage via units 1 through 11. Upstream passage is provided by a single fish ladder with two separate entrances in the tailrace and two exits in the forebay.

The frequency, timing, and route of downstream passage by bull trout through the Wells Dam are not known with a high degree of confidence. Sub-adult downstream passage may occur any time, and the routes available to sub-adult fish are dependent on the time of year. Results of the applicant's telemetry studies show that adult bull trout in the Project area are more likely to move downstream of Wells dam after spawning in tributaries or reside in the Project's reservoir from mid to late fall (BioAnalysts, Inc. 2004, p. 38; LGL and Douglas PUD 2008a, p. 29). No sub-adult bull trout were encountered at Wells Dam during the applicant's studies, however, from 2004 to 2008, 67 sub-adult bull trout were PIT tagged by the applicant in the Methow River sub-basin (located upstream of the Project) during standard tributary smolt trapping operations. The applicant also operated PIT tag detection systems year-round within the Wells Dam fishways during 2005 to 2008 and no PIT-tagged sub-adult bull trout were detected. Because Columbia River migratory bull trout are present in very low densities compared with other fish species, and they have relatively unpredictable migration behavior (especially sub-adults), effective study methods to evaluate upstream and downstream passage have not been developed at this point. The *Wells Aquatic Settlement Agreement* requires the Licensee to implement the *Wells Bull Trout Management Plan* for the Project (Douglas PUD 2010). We include a specific recommendation to require the development and implementation of the Project's *Bull Trout Management Plan* during the term of the new license, which includes measures to minimize the impact of the Project on bull trout during the new license term.

Threatened and Endangered Species Compliance

Section 7 of the ESA and its implementing regulations (50 CFR Part 402) require Federal agencies to review their actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If effects to federally listed species may occur as a result of the

Project, consultation with the Service is required. Because listed species are likely to occur in the Project area, we recommend that the Commission enter into consultation with the Service to consider both immediate and ongoing effects associated with the Project.

The applicant has been designated, under 50 CFR 402.08, as the non-federal representative for this relicensing proceeding, and has completed a final biological assessment in coordination with the Service. However, the ultimate responsibility for compliance with ESA section 7 remains with the Commission. The draft biological assessment (BA) can be found in Exhibit E (Appendix E) of the FLA. Consequently, the Commission must independently review and evaluate the scope and contents of the BA.

On January 14, 2010, the Service proposed to revise its 2005 designation of critical habitat for the bull trout (*Salvelinus confluentus*), a threatened species protected under the ESA. In total, the Service proposes to designate approximately 22,679 miles of streams and 533,426 acres of lakes and reservoirs in Idaho, Oregon, Washington, Montana and Nevada as critical habitat for this wide-ranging fish. The proposal includes 985 miles of marine shoreline in Washington. The proposed revision is the result of extensive review of earlier bull trout critical habitat proposals, the 2005 designation, public comments, and new information. The Service voluntarily embarked on this re-examination to ensure that the best science was used to identify the features and areas essential to the conservation of the species. Bull trout depend on cold, clear water and are excellent indicators of water quality. Protecting and restoring their habitat aids in maintaining the water quality of rivers and lakes throughout the Northwest. Based upon this proposed revision, the project area now contains critical habitat for bull trout.

Finally, hydropower projects are dynamic and often operate in a changing regulatory environment. Licenses must remain flexible and open to adaptive management to ensure that measures to protect fish and wildlife, including listed species, remain adequate and effective. We recommend that the Commission re-initiate consultation under ESA (50 CFR §402.16), if needed, during the term of the new license.

RECOMMENDED LICENSE CONDITION PURSUANT TO SECTION 10(a) OF THE FEDERAL POWER ACT

Pursuant to section 10(a) of the FPA (16 U.S.C. § 791 *et seq.*), the Department recommends that the following term and condition be included in the new project license:

10(a) Recommendation No. 1: Implementation of the Recreation Resource Management Plan

The Licensee shall implement the Recreation Resources Management Plan (RRMP) to enhance recreation resources at the Wells Dam. The RMPP includes the following:

1. Improvements to facilitate the Greater Columbia Water Trail Development including the boat-in tent camping, signs, and informational material for non-motorized boaters.

2. Wildlife viewing trail plan development, this plan will identify trail development that is compatible with natural resource goals and provide opportunities for visitors to connect with nature.
3. The development of a navigation map and promotion of recreation facilities through printed and web-based material, signs, and interpretive displays.
4. Monitoring of recreation resources over time and the development of a recreation needs analysis.

Justification

The Wells Dam offers a variety of recreation opportunities including boating, fishing, walking, and sight-seeing, and a RRMP is required as part of the license. This plan addresses the long-term vision for the Wells reservoir including opportunities for existing and potential future recreation needs. Water and land-based trails are rising in popularity in Washington State and this plan provides new and improved facilities for both of these opportunities.

FISH AND WILDLIFE RECOMMENDATIONS PURSUANT TO SECTION 10(j) OF THE FEDERAL POWER ACT

Section 10(j) of the FPA requires that each license issued for a hydropower project contain conditions to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources, including related spawning grounds and habitat, affected by the development, operation, and management of the project (16 U.S.C. § 803(j)). These conditions are to be based on recommendations received from federal and state fish and wildlife agencies. The Commission is required to include such recommendations unless it finds that they are inconsistent with Part I of the FPA or other applicable law, and that alternative conditions will adequately address fish and wildlife issues.

These section 10(j) fish and wildlife recommendations are based upon information and agreements developed during the ILP, and are intended to support resource agency management goals and objectives. The Service's priorities for the next licensing period are to ensure safe and timely passage for migrating fish at the Project; to assist in the recovery and maintenance of successful, self-sustaining stocks of bull trout, Pacific lamprey, white sturgeon, and other native fishes in the Columbia River Basin; and mitigate for the unavoidable losses of fish, wildlife and their habitats due to Project operations. These priorities have been expressed to the applicant, and the applicant has addressed most of them during the ILP.

If the Commission determines that any of the fish and wildlife recommendations herein are inconsistent with the purposes and requirements of the FPA, as amended by the Electric Consumers Protection Act, then the Commission should contact Mr. Ken S. Berg, Manager, U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, 510 Desmond Lane S.E., Suite 102, Lacey, Washington, 98503-1263, Telephone: (360) 753-9440, prior to the issuance of the

license. The Service reserves the right to amend these recommendations, if warranted, based on new information and the results of the Commission's environmental review process.

Accordingly, pursuant to Section 10(j) of the FPA (16 U.S.C § 791 *et seq.*), as amended, and to carry out the purposes of the Fish and Wildlife Coordination Act (16 U.S.C. § 661 *et seq.*), as amended, the Service recommends that the following terms and conditions to protect, mitigate damages to, and enhance fish and wildlife resources be included in any license the Commission may issue for the Wells Dam Hydroelectric Project, Project No. 2149-152. Reporting and further consultation requirements should be added by the Commission to ensure timely and adequate compliance with these license articles.

10(j) Recommendation No. 1: Co-termination for the Duration of the New License and the Wells AFA/HCP:

For the conservation, development, and mitigation of damages to fish and wildlife resources, the term of the new license will not extend beyond the term of the Wells Anadromous Fish Agreement and Habitat Conservation Plan filed with the Commission on November 24, 2003, and approved by the Commission at 107 FERC ¶ 61,280 and ¶ 61,281, unless the Licensee renegotiates a new Wells AFA/HCP with the fishery parties within 10 years of the end of any 50 year license proposed by the Commission for the Project.

Justification

The Wells AFA/HCP was intended to settle anadromous fish passage issues at the Wells Hydroelectric Project. Included in this goal was the need to establish appropriate protections for fish listed as endangered or threatened under the ESA. The Wells AFA/HCP is, in essence, a comprehensive plan for fish passage and endangered species issues for certain fish species at the Project.

Prior to issuance, the Wells AFA/HCP was reviewed under section 7 of the ESA and NOAA Fisheries issued a biological opinion to cover the incidental take of listed fish for the implementation of the Wells AFA/HCP at the Wells Project. The term of the Wells AFA/HCP is fifty years and both the section 7 analysis and the incidental take permits issued for implementation of the plan are limited to the same fifty-year term. Therefore, we strongly recommend that the Commission limit the new Wells license to a term that does not exceed the expiration date of the Wells AFA/HCP, which is March 2054. If the license for operation of the Project extends beyond the term of the Wells AFA/HCP, additional ESA consultation would be required prior to issuance of the license. If such consultation were needed, additional reasonable and prudent measures to limit incidental take in the years after the expiration of the Wells AFA/HCP would likely be added. In the absence of the protections under the Wells AFA/HCP, the Commission, fishery agencies, licensee, and other interested parties would need to devise other measures to achieve appropriate protections for ESA-listed anadromous fish and bull trout. The flexibility to renegotiate a new Wells AFA/HCP would ensure that measures to achieve protections for ESA-listed anadromous fish and bull trout are memorialized in the new license

10(j) Recommendation No. 2: Tributary Conservation Plan for Anadromous Salmonids Covered by Provisions of the Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP)

Upon issuance of the new license, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, implement Section 7 of the *Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP)* filed with the Commission on November 24, 2003, and approved by the Commission at 107 FERC ¶ 61,280 and ¶ 61,281. Implementation measures shall include those specified in sub-section 7.1 *Tributary Plan*, sub-section 7.2 *Purpose*, sub-section 7.3 *Tributary Committee*, and sub-section 7.4 *Funding*, including any referenced supporting documents as set forth in the Wells AFA/HCP.

Justification

The Service is a party and signatory to the Wells AFA/HCP. The Wells AFA/HCP is part of the existing license for the Wells Project and is incorporated into the applicant's current application for a new license. The Wells AFA/HCP is a comprehensive agreement intended to address fish passage and other fisheries conservation issues for anadromous fish at the Wells Project for 50 years. Specifically, Section 7 of the Wells AFA/HCP, the Tributary Conservation Plan, provides for the protection and restoration of salmon and steelhead habitat within the Columbia River watershed (from the Chief Joseph tailrace to the Wells tailrace), and the Methow, and Okanogan watersheds. These tributary habitat improvements are intended to offset 2 percent of unavoidable project mortality to spring and summer/fall Chinook salmon, sockeye salmon, coho salmon, and steelhead and to help achieve the applicant's standard of No Net Impact (NNI) for Plan Species at the Project. Therefore, the *Tributary Conservation Plan* should be a specific provision of the new license.

10(j) Recommendation No. 3: Hatchery Compensation Plan for Anadromous Salmonids Covered by the Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP)

Upon issuance of the new license, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, implement Section 8 of the *Wells Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP)* filed with the Commission on November 24, 2003, and approved by the Commission at 107 FERC ¶ 61,280 and ¶ 61,281. Implementation measures shall include those specified in sub-section 8.1 *Hatchery Objectives*, sub-section 8.2 *Hatchery Committee*, sub-section 8.3 *Hatchery Operations*, sub-section 8.4 *Hatchery Production Commitments*, sub-section 8.5 *Monitoring and Evaluation*, sub-section 8.6 *Program Modification*, sub-section 8.7 *Unforeseen Hatchery Policies under ESA*, sub-section 8.8 *Program Review*, and sub-section 8.9 *New Hatchery Facilities*, including any referenced supporting documents as set forth in the Wells AFA/HCP.

Justification

The Service is a party and signatory to the Wells AFA/HCP. The Wells AFA/HCP is part of the existing license for the Wells Hydroelectric Project and is incorporated into the applicant's current application for new license. The Wells AFA/HCP is a comprehensive agreement intended to settle

fish passage and other fisheries conservation issues for anadromous fish at the Wells Hydroelectric Project for 50 years. Specifically, Section 8 of the Wells AFA/HCP, the Hatchery Compensation Plan, provides for the continued operation of the Project's hatchery facilities and establishes objectives for rebuilding natural populations and achieving the applicant's standard of No Net Impact (NNI) for Plan Species at the Project. Therefore, the *Hatchery Compensation Plan* should be a specific provision of the new license.

10(j) Recommendation No. 4: Bull Trout Management Plan

For the conservation, development, and mitigation of damages to fish and wildlife resources, the Licensee shall, in consultation with the U.S. Fish and Wildlife Service (Service), National Marine Fisheries Service (NOAA Fisheries), the Wells Aquatic SWG, and the Wells HCP Coordinating Committee, develop and implement the *Bull Trout Management Plan* (BTMP) according to the requirements of the Wells Aquatic Settlement Agreement. The BTMP shall be implemented to direct the improvement of adult upstream passage and juvenile downstream passage through the Project. The BTMP shall include the development of telemetry studies to monitor the movement, behavior, and passage of adults through the Project's existing fishways and reservoir. The BTMP shall also include an assessment of fishway modifications made to improve the passage of bull trout and monitor incidental take of bull trout under the ESA at the Project. In addition, the completed BTMP shall include the following measures to be developed and implemented by the Licensee for the conservation and development of bull trout:

- a. *Investigate Entrapment or Stranding of Bull Trout During Periods of Low Reservoir Elevation (BTMP Section 4.4)*: The Licensee shall continue to investigate potential entrapment or stranding areas for bull trout through periodic monitoring when periods of low reservoir elevation expose identified sites. During the first five years of the new license, the Licensee shall implement five bull trout entrapment/stranding assessments during periods of low reservoir elevation (below 773 ft. MSL). If no incidences of bull trout stranding are observed during the first five years of study, additional assessment will take place every fifth year during the remainder of the license term, unless waived by the Service, NOAA Fisheries, and the Aquatic SWG. If bull trout entrapment and stranding result in injury or mortality to bull trout, then reasonable and appropriate measures will be implemented by the Licensee, in consultation with the Service, NOAA Fisheries, and the Aquatic SWG, to address the impact and reduce take of bull trout.
- b. *Monitoring Other Aquatic Resource Management Plan Activities and Predator Control Program for Mortality/Injury of Bull Trout (BTMP Section 4.5.1)*: The Licensee shall monitor activities associated with the implementation of other Aquatic Resource Management Plans identified in the Wells Aquatic Settlement Agreement (plans for white sturgeon, Pacific lamprey, resident fish, aquatic nuisance species, and water quality) and Predator Control Program that may result in injury/mortality of bull trout. If the implementation of other Aquatic Resource Management Plan activities results in

- injury/mortality of bull trout, then the Licensee shall develop and implement a plan, in consultation with the Service, NOAA Fisheries, and the Aquatic SWG, to address the identified factors contributing to the injury/mortality of bull trout. If injury/mortality to bull trout results due to the implementation of the Predator Control Program, then the Licensee shall develop a plan, in consultation with the Service, NOAA Fisheries, HCP Coordinating Committee, and the Aquatic SWG, to address the identified factors contributing to the injury/mortality of bull trout.
- c. *Funding Collection of Tissues Samples and Genetic Analysis (BTMP Section 4.5.2):* Beginning in year 10 of the new license, and continuing at 10 years intervals thereafter for the term of the new license, the Licensee shall, in coordination with the Service, NOAA Fisheries, and the Aquatic SWG, collect up to 10 adult bull trout tissue samples in the Wells Dam fishway facilities over a period of one year and fund their genetic analysis. Genetic tissue collection will take place concurrently with the implementation of the bull trout radio-telemetry monitoring study (*BTMP Section 4.2.1*). Any sub-adult bull trout collected during these activities will also be incorporated into the bull trout genetic analysis. Beginning in year one of the new license, the Licensee shall collect up to 10 adult bull trout tissue samples from the Twisp River brood stock collection facility over a period of one year and will fund their genetic analysis. Genetic tissue collection shall take place concurrent with the implementation of the Off-Project bull trout radio-telemetry monitoring study (*BTMP Section 4.2.2*). All completed analysis will be submitted to the Service's Central Washington Field Office in Wenatchee, Washington, for review.
- d. *Information Exchange and Regional Monitoring Efforts (BTMP Section 4.5.3):* The Licensee shall continue to participate in information exchanges with other entities conducting bull trout research and regional efforts to explore new monitoring methods and coordination of radio-tag frequencies for bull trout monitoring studies in the Project. The Licensee shall make available an informational and educational display at the Wells Dam Visitor Center to promote the conservation and recovery of bull trout in the Upper Columbia River and associated tributary streams.
- e. *Bull Trout Monitoring During Hatchery Activities (BTMP Section 4.6.1):* During the term of the new license, the Licensee shall monitor hatchery actions (e.g., salmon trapping, sturgeon brood stocking and capture activities) that may result in injury/mortality to adult and sub-adult bull trout. Actions to be monitored shall be associated with the Wells Hatchery, the Methow Hatchery, and any future facilities directly funded by the Licensee. The Licensee shall develop a plan, in consultation with the Service, NOAA Fisheries, and the Aquatic SWG, to address any identified factors contributing to the injury/mortality of adult and sub-adult, during hatchery activities.

- f. Reporting (BTMP Section 4.8): The Licensee shall provide a draft annual report to the Service, NOAA Fisheries, and the Aquatic SWG summarizing the previous year's activities undertaken in accordance with the BTMP. The report will document all bull trout activities conducted within the Project and describe activities and changes proposed for the following year. Furthermore, any decisions, statements of agreement, evaluations, or changes made pursuant to this BTMP shall be included in the annual report. If significant activity was not conducted in a given year, the Licensee shall prepare a memorandum providing an explanation of the circumstances in lieu of the annual report.

Justification

The Service concurs with the applicant's proposed comprehensive BTMP (Douglas PUD 2010). The BTMP is intended to be an adaptive management plan, where strategies for meeting the goals and objectives shall be revised in a collaborative effort between relicensing stakeholders and regional scientific experts using new information, the best techniques, and the evaluation/monitoring results to achieve identified goals. The protection, mitigation, and enhancement measures described in the BTMP will be used to achieve consistency with the Service's Bull Trout Recovery Plan and establish the measures necessary to minimize the effect of any incidental take of bull trout during the term of the new license.

Bull trout in the mid-Columbia River Basin have more specific habitat requirements than most other salmonids. Habitat components that influence bull trout distribution abundance include water temperature, cover, and channel stability; substrate for spawning and rearing; and migratory corridors. Bull trout are found in colder streams and require colder water than most other salmonids for incubation, juvenile rearing, and spawning. Spawning and rearing areas are often associated with cold-water springs, groundwater infiltration, and/or the coldest streams in a watershed. Throughout their lives, bull trout require complex forms of cover, including large woody debris, undercut banks, boulders, and pools. Alterations in channel form and reductions in channel stability result in habitat degradation and reduced survival of bull trout eggs and juveniles. Channel alterations may reduce the abundance and quality of side channels, stream margins, and pools, which are areas bull trout frequently inhabit. For spawning and early rearing bull trout require loose, clean gravel relatively free of fine sediments. Because bull trout have a relatively long incubation and development period within spawning gravel (greater than 200 days), the transport of bedload in unstable channels may kill young bull trout.

Bull trout use migratory corridors such as the mid-Columbia River to move back and forth from spawning and rearing habitats to foraging and overwintering habitats. Different habitats provide bull trout the opportunity to exploit diverse resources, and migratory corridors allow local populations to connect, which increases the potential for gene flow and rebuilding of local populations (USFWS 2002b).

Declines in bull trout distribution and abundance are the result of the combined effects of habitat degradation and fragmentation; the blockage of migratory corridors; poor water quality; angler harvest and poaching; entrainment into diversion channels and dams; and the introduction of non-

native species. Specific land and water management activities that continue to depress bull trout populations and degrade habitat include hydroelectric dams and other diversion structures, forest management practices, livestock grazing, agriculture, road construction and maintenance, mining, and urban and rural development. Implementation of the applicant's project-specific BTMP will minimize take of bull trout at the Project and greatly assist the recovery of bull trout within the mid-Columbia River Basin.

10(j) Recommendation No. 5: Pacific Lamprey Management Plan

For the conservation, development, and mitigation of damages to fish and wildlife resources, the Licensee shall, in consultation with the U.S. Fish and Wildlife Service (Service), National Marine Fisheries Service (NOAA Fisheries), and the Aquatic SWG, implement the *Pacific Lamprey Management Plan* (PLMP) according to the requirements of the *Aquatic Settlement Agreement*. The PLMP shall be implemented to improve adult upstream passage and juvenile downstream passage of Pacific lamprey through the Project. The PLMP shall include the development of telemetry studies to monitor the movement, behavior, and passage of adults through the Project's existing fishways and reservoir. The PLMP shall also include assessments of fishway modifications made to improve the passage of adult lamprey at other hydroelectric developments in the Columbia River Basin for potential implementation at the Wells Project. In addition, the completed PLMP shall include the following measures to be developed and implemented by the Licensee for the conservation and development of Pacific lamprey:

- a. *Downstream Bypass Operations Criteria (PLMP Section 4.2.1)*: The Licensee shall operate the downstream bypass system at Wells Dam in accordance with criteria outlined in the Wells AFA/HCP.
- b. *Salvage Activities During Ladder Maintenance Dewatering(PLMP Section 4.2.2)*: The Licensee shall continue to conduct salvage activities as required by the Wells AFA/HCP's Adult Fish Passage Plan during fishway dewatering operations. All fish species, including Pacific lamprey that are encountered during dewatering operations shall be salvaged using protocols identified in the Wells AFA/HCP. Any juvenile Pacific lamprey that are captured during salvage activities will be released unharmed downstream of Wells Dam. The Licensee shall coordinate salvage activities with the Service, NOAA Fisheries, the Aquatic SWG, and the Bureau of Indian Affairs and allow for member participation. The Licensee shall provide a summary of salvage activities in the annual report.
- c. *Juvenile Pacific Lamprey Passage and Survival Literature Review (PLMP Section 4.2.3)*: Beginning in year five and every five years thereafter during the new license, the Licensee, in consultation with the Service, NOAA Fisheries, the Aquatic SWG, and the BIA shall conduct a literature review to summarize available technical information related to juvenile lamprey passage and survival through Columbia and Snake river hydroelectric facilities. The Licensee shall then assess and incorporate this information in conducting activities identified in the fishway prescription for juvenile lamprey.

- d. Juvenile Pacific Lamprey Habitat Evaluation (PLMP Section 4.2.5): Within three years of the effective date of the new license, the Licensee shall implement a one-year study to examine presence and relative abundance of juvenile Pacific lamprey in habitat areas within the Project that may be affected by Project operations. As part of this measure, the Licensee shall identify areas of potential juvenile Pacific lamprey habitat for future evaluation. Sampling of these areas shall assess presence/absence and relative abundance. Any sampling methodologies used in support of this activity shall require coordination with the Habitat Conservation Plan Coordinating Committee and regulatory approval of the federal and state agencies.
- e. Regional Lamprey Working Groups (PLMP Section 4.3.1): The Licensee shall participate in Pacific lamprey work groups in order to support regional conservation efforts (e.g., the Pacific Lamprey Technical Work Group and the Service's Lamprey Conservation Initiative). Activities shall include, but are not limited to, information exchanges with other entities, meeting attendance, and coordination of the Licensee's Pacific lamprey activities with other entities conducting lamprey research in the mid-Columbia River. Activities shall also include conducting PLMP research within the Project, and sharing that information with other entities.

Justification

To address the Project's effects on Pacific lamprey, the applicant proposes to implement the Wells Comprehensive Pacific Lamprey Management Plan (PLMP) (Douglas PUD 2010). The goal of the PLMP is to implement measures to monitor and address impacts, if any, on Pacific lamprey resulting from the Project during the term of the new license. To achieve this goal, the PLMP includes measures to: (1) identify and address any adverse Project-related impacts on passage of adult Pacific lamprey; (2) identify and address any Project-related impacts on downstream passage and survival, and rearing of juvenile Pacific lamprey; and (3) participate in the development of regional Pacific lamprey conservation activities. Specific measures to be implemented include conducting accurate adult lamprey passage counts; fishway modifications to improve upstream passage; upstream passage evaluations; juvenile downstream passage and survival evaluation; determining juvenile lamprey presence/absence and relative abundance in the project area; supporting regional lamprey conservation efforts through lamprey research and information exchanges; and implementing the Wells AFA/HCP. The PLMP is intended to be an adaptive management approach by which specific actions are implemented to eliminate ongoing negative impacts on Pacific lamprey passage. Actions may be adjusted through collaborative efforts of the relicensing stakeholders, based on new information and ongoing monitoring results. Accordingly, the PLMP will be reviewed on a periodic basis to allow for planning and future adjustments over the term of the new license. The plan is also intended to be consistent with other management plans in the mid-Columbia region.

The Service concurs in principle with the applicant's proposed protection, mitigation, and enhancement measures for Pacific lamprey. However, the specific details for some of the proposed measures related to the safe, timely, and effective passage of Pacific lamprey are not fully defined at this time and other parts of the proposed Pacific Lamprey Management Plan lack

specificity. There is an absence of specific milestones in the plan regarding the upstream and downstream passage of Pacific lamprey; however, measures have been drafted using the available science for the Project and ensure that steady progress is made towards improving lamprey passage and reducing lamprey mortality. The Service provides further specificity regarding these milestones in its fishway prescription for this Project to expedite steady progress towards the development of the information needed to minimize project impacts on adult and juvenile Pacific lamprey. These prescribed measures are important because there is significant regional concern regarding lamprey populations in the Columbia River Basin.

In 1993, the Oregon Department of Fish and Wildlife designated Pacific lamprey at risk of being listed as threatened or endangered. The Service designated Pacific lamprey as a Category 2 candidate species under the ESA in 1994. The Northwest Power and Conservation Council's 1994 Fish and Wildlife Program acknowledged the apparent decline of Pacific lamprey and requested a status report to identify research needs. The Columbia River Treaty Tribes have repeatedly voiced concern about the decline of Pacific lamprey, a culturally important species. In January of 2003, three species of lamprey were petitioned for listing under the ESA, requiring the applicant to develop a PLMP to identify and address the Project's effects on this important species. Also, to implement the structural or operational modifications identified for the improvement of lamprey passage during the term of the new license is appropriate. The information developed will allow the applicant and resource managers to develop and implement suitable facilities, structural modifications, and/or changes to Project operations to minimize or eliminate ongoing negative impacts on Pacific lamprey.

10(j) Recommendation No. 6: White Sturgeon Management Plan

Within one year of license issuance, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, complete and implement a WSMP for the Project. The WSMP shall be completed in consultation with the U.S. Fish and Wildlife Service (Service), National Marine Fisheries Service (NOAA Fisheries), the Aquatic SWG, and the affected Tribes. The goal of the WSMP is to increase the white sturgeon population in the Wells Reservoir to a level that can be supported by the available habitat and create a diverse age structure in the population that consists of multiple cohorts (adults and juvenile age classes). The WSMP shall include, but not be limited to, the following measures to be implemented in Phase I and Phase II of the plan:

- a. Phase I (Years 1-10):
 - Development of a Brood Stock Collection and Breeding Plan (Year 1 and updated as determined by the Aquatic SWG)(*WSMP Section 4.1.1*);
 - Brood Stock Collection (Years 1-4 and other years to be determined by the Aquatic SWG)(*WSMP Section 4.1.1*);
 - Juvenile Stocking (Years 2-5 and other years to be determined by the Aquatic SWG)(*WSMP Section 4.1.2*);
 - Index Monitoring Program implementation (Years 3-5 and 2 more years prior to Year 10 to be determined by the Aquatic SWG)(*WSMP Section 4.2.1*);

- Marked Fish Tracking (Years 3-5 and 2 more years prior to Year 10 to be determined by the Aquatic SWG)(*WSMP Section 4.2.2*);
 - Completing Natural Reproduction Assessments (5 annual assessments over the license term) (*WSMP Section 4.2.3*). Natural reproduction assessments can be implemented over the term of the license (Phase I and Phase II) as determined by the Aquatic SWG;
- b. Phase II (Years 11-50):
- Long-term juvenile stocking (Stocking rate and frequency to be determined by Aquatic SWG in Years 11-50)(*WSMP Section 4.4.1*);
 - Supplementation Program Review (Years 11-50 to be determined by the Aquatic SWG)(*WSMP Section 4.4.2*);
 - Long-term Index Monitoring Program (Year 12 and once every 3-5 years thereafter to be determined by the Aquatic SWG)(*WSMP Section 4.4.3*);
 - Adult Passage Evaluation (Year 11 and once every 10 years thereafter)(*WSMP Section 4.4*)

Justification

The current status of the mid-Columbia River white sturgeon population requires immediate action to create a viable population. The ongoing decline of the mid-Columbia population likely began with repeated recruitment failure several decades ago. The population decline has only been recently recognized and there is concern that extirpation may occur before effective actions to arrest the decline can be implemented. The applicant's proposed protection, mitigation, and enhancement measures for white sturgeon include an augmentation program to enhance white sturgeon populations through the use of hatchery fish or other measures to achieve specific population goals; a monitoring and evaluation program to evaluate the effectiveness of the plan and augmentation program, and to adjust population targets; and provisions for coordination with other mid-Columbia River regional sturgeon planning groups. The Service concurs in principle with these measures. These measures are consistent with other regional plans developed to arrest the decline of the white sturgeon in the Columbia River Basin (Upper Columbia White Sturgeon Recovery Initiative 2002). The augmentation/supplementation of white sturgeon in the Wells reservoir will help to offset some of the Project's continuing effects on the natural recruitment of this popular sport fish, as well as improve recreational fishing opportunity within the reservoir and tribal use of white sturgeon.

10(j) Recommendation No. 7: Resident Fish Management Plan

Within one year of license issuance, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, complete, fund, and implement its comprehensive Resident Fish Management Plan (RFMP) in accordance with the Aquatic Settlement Agreement. The RFMP shall be implemented in consultation with the U.S. Fish and Wildlife Service (Service) and the Aquatic SWG. The goal of the RFMP is to protect and enhance native resident fish populations and habitat in the Project during the term of the new license. The RFMP shall include the following measures:

- a. HCP Predator Control Program (RFMP Section 4.1, sub-section 4.1.1): The Licensee shall continue to conduct annual predator control activities for northern pikeminnow and avian predators as outlined in the Wells AFA/HCP (Douglas PUD 2002).
- b. Project Shoreline Management and Land Use Policy (RFMP Section 4.1, sub-section 4.1.2): The Licensee shall continue to implement the Douglas Land Use Policy which requires approval of all land use activities that take place within the Project Boundary. All permit activities such as construction of boat docks, piers, and landscaping within the Project Boundary shall be subject to review and approval by the Licensee, only after the permit applicant has received all other required regulatory permits. In addition, proposed permits must receive consideration by the Wells AFA/HCP signatory parties and be reviewed by state and federal action agencies.
- c. Monitoring the Resident Fish Assemblage within the Wells Reservoir (Objective 2) (RFMP Section 4.2): The Licensee shall conduct a resident fish study to determine the relative abundance of the various resident fish species found within the Wells Reservoir. This assessment shall occur in year 2 and every 10 years thereafter during the term of the new license. The study objectives will focus on (1) identifying whether there have been major shifts in the resident fish populations resulting from the implementation of the White Sturgeon, Bull Trout, Pacific Lamprey, and Aquatic Nuisance Species Management Plans, and the Wells AFA/HCP Predator Control Program, and (2) collecting information on resident predator fish populations found within the Wells Reservoir.

To maintain comparative assemblage information over time and to inform Project operations, resident fish status and trends, methodology for monitoring activities shall remain consistent with the methods described in Beak (1999). Information collected from these monitoring activities may be used to inform the implementation activities of the other Wells aquatic resource management plans and the Wells AFA/HCP predator control activities.

- d. Actions to Address Major Shifts in Native Resident Fish Assemblage (Objective 3)(RFMP Section 4.3): Based upon information collected during the resident fish status and trends monitoring (Section 4.2), if any statistically significant negative changes to native resident fish populations of social, economic, and cultural importance are identified, and are not caused by and cannot be addressed through the implementation of other Aquatic Resource Management Plans or activities (white sturgeon, Pacific lamprey, bull trout, ANS, HCP, predator control), reasonable and appropriate implementation measures to address negative changes, if any, will be undertaken by the Licensee.
- e. Monitoring in Response to Proposed Changes in Project Operations (Objective 4)(RFMP Section 4.4): If at any time during the new license term, future changes in Wells Dam operations are proposed that require FERC approval and the Aquatic SWG

concludes that either reservoir or tailrace habitat within Project boundary may be affected with regards to spawning, rearing, and migration (aquatic life designated uses) of native resident fish, an assessment will be implemented to identify potential effects, if any, in order to make informed license decisions. If the results of the assessment identify adverse effects to native resident fish species of social, economic and cultural importance, attributable to such changes in Project operations, then the Licensee shall consult with the Aquatic SWG to select and implement reasonable and appropriate measures to address such effects.

- f. *Reporting (RFMP Section 4.5)*: The Licensee shall provide a draft annual report to the Aquatic SWG summarizing the previous year's activities undertaken in accordance with the RFMP. The report will document all native resident fish activities conducted within the Project. Furthermore, any decisions, statements of agreement, evaluations, or changes made pursuant to this RFMP will be included in the annual report. If significant activity was not conducted in a given year, Douglas will prepare a memorandum providing an explanation of the circumstances in lieu of the annual report.

Justification

The applicant has documented numerous species of resident fish which reside in the project area (Douglas PUD 2010; Exhibit E). Species abundance and composition of these resident fish have been relatively constant over time. However, to continue the monitoring and management of residence fish and associated impacts resulting from the continued operation of the Project, the applicant has developed the RFMP as part of the ASA. In conjunction with the Wells AFA/HCP, the ASA was developed in collaboration with federal, state, and tribal entities to address all of the aquatic resource issues related to the relicensing of the Project, including impacts on resident fish.

The applicant identifies in its FLA that the Project may have an adverse effect on resident fish (Douglas PUD 2010, Exhibit E). The planned implementation of the RFMP, during the term of the new license, is expected to fully address any measureable adverse effects on resident fish. The applicant notes in its FLA that reservoir fluctuations resulting from the Project may have an effect on resident fish and benthic macroinvertebrates (Douglas PUD 2010, Exhibit E). Effects of the applicant's northern pikeminnow removal program associated with the Wells AFA/HCP may also have an effect on native resident fish. Although implementation of this program is targeted at reducing predation on anadromous fish species covered by the Wells AFA/HCP, it is also anticipated to have direct benefits to resident fish in the project area. The applicant further acknowledged that it should continue resident fish production to offset these types of Project effects on this category of fish. Accordingly, the development and implementation of the proposed RFMP will minimize the effect of future project operations on resident fish resources and ensure that the benefits of those measures are sustained for the duration of the new license term.

10(j) Recommendation No. 8: Wildlife and Botanical Management Plan

Within one year of license issuance, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, complete, fund, and implement its comprehensive Wildlife and Botanical Management Plan (WBMP). The WBMP shall be implemented in consultation with the U.S. Fish and Wildlife Service (Service) and the Terrestrial Work Group (TWG). The goal of the WBMP is to protect, maintain and enhance wildlife and habitat on Project lands commensurate with ongoing effects of operating the Project. The WBMP is also intended to guide wildlife management activities and to protect rare, threatened and endangered wildlife and plant species on Project lands during the term of the new license for the Project. The WBMP shall include goals, objectives, and procedures for the management of RTE wildlife and botanical species' habitats, noxious weeds, bald eagle habitat (perching and nesting structures), and wildlife monitoring on project lands, other lands adjacent to the reservoir, and on lands that may be purchased to meet mitigation objectives. The WBMP shall be tiered to any Commission-approved Recreation Resources Management Plan so that goals and objectives of both plans are integrated and not in conflict. The plan shall be updated in consultation with the resource agencies referenced herein. Lastly, the Licensee shall provide annual progress reports and conduct annual coordination meetings with the resource agencies referenced herein to provide updates on the success of the mitigation measures implemented under the WBMP. The meetings shall be initiated, coordinated, and documented by the Licensee.

Justification

The primary goal of the Licensee's WBMP is to protect, maintain and enhance wildlife and habitat on Project lands commensurate with ongoing effects of operating the Project. Secondary goals are to restore or improve ecological quality and diversity, to restore or increase habitat for key indicator species, and to provide for public use. The Service concurs in principle with the goals of the proposed WBMP. At this time, adequate funding resources are not efficient to respond to current and future management needs in the project area. According to the Applicant and WDFW, the operation and maintenance funding provided under the original license for the creation and development of wildlife mitigation lands has proved to be inadequate to provide for the most basic wildlife management activities (Douglas PUD 2010). Budgets to provide staff and to conduct activities like fencing, habitat management, weed control, road maintenance, public use management, and signage have been minimal. The lack of adequate operation and management funds puts these lands at risk and severely reduces the ability of those lands to adequately mitigate for wildlife losses related to past, current, and future project operations. Accordingly, the development of a WBMP recommended by the Service will minimize the effect of future project operations on wildlife resources and ensure that the benefits of those measures are sustained for the duration of the new license term.

The WBMP was also developed in consultation with state and federal agencies. The WBMP will guide implementation of resource protection measures for wildlife and botanical resources during the term of the new license, including maintenance and enhancement of wildlife and habitat, protection for RTE wildlife and plant species, maintaining the Cassimer Bar Wildlife Management Area, and control of noxious weeds in the Project Boundary. The wildlife and botanical protection

measures will enhance recreational opportunities in the Project area, including fishing, hunting, and wildlife viewing.

The applicant has also developed the *230 kV Transmission Line Corridor Avian Protection Plan (APP)*, to protect resident and migrant birds that could potentially interact with the Wells 230 kV transmission lines. The APP is intended to protect both avian migrants interacting with the transmission lines crossing the Columbia River and birds nesting or perching on the transmission line structures.

10(j) Recommendation No. 9: Avian Protection Plan

Within one year of license issuance, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, complete, fund, and implement its Avian Protection Plan (APP). The APP shall be implemented in consultation with the U.S. Fish and Wildlife Service (Service) and the Terrestrial Work Group (TWG). The goal of the APP is to protect resident and migrant birds that interact with the Wells 230kV transmission lines. The APP shall include the following measures:

- a. *Bird Flight Diverters (APP Section 5.2.1)*: Bird flight diverters shall be installed on the Wells transmission line river crossing in the event that the transmission line is reconducted, or if the static wire or aviation markers are replaced. The bird flight diverters shall be spaced between the aerial marker balls to increase visibility of the shield wire.
- b. *Record Keeping (APP Section 5.3)*: The Licensee shall maintain records of all avian mortalities detected on the 230 kV transmission line right-of-way. The Licensee shall report all avian mortalities caused by the Wells 230 kV transmission lines to the Service through the online USFWS Bird Fatality/Injury Reporting Program (<https://birdreport.fws.gov>).
- c. *Nest Management (APP Section 6.1)*: The Licensee shall implement a nest management protocol that includes: (1) all nest management will be performed in compliance with federal and state laws; (2) the Licensee's Wildlife Biologist shall be consulted before any nest is removed and will secure permits from the Service and WDFW, if necessary, before nest removal proceeds; and (3) active nests shall not be removed from the Wells 230 kV transmission line between February 1 and August 31 without prior approval from the Service and WDFW.
- d. *Tree Removal (APP Section 6.2.1)*: To protect nesting birds, the Licensee shall only perform tree clearing on the transmission line corridor between August 31 and January 31. Clearing of the conifer trees on the transmission line corridor is anticipated to happen once every ten years beginning in 2018.

- e. Training (APP Section 7.0): The Licensee shall train all appropriate utility personnel to understand avian issues on the Wells 230 kV transmission lines. This training shall include background information, protocols/procedures by which employees are required to report an avian mortality, implement a nest removal action, disposal of carcasses, perform vegetation management and comply with applicable regulations and the consequences of non-compliance.
- f. Consultation (APP Section 8.0): The Licensee shall meet with resource agencies or tribes, when requested, to discuss management of wildlife and botanical species on the transmission line corridor. All changes to the APP must be agreed to by the WDFW, Service, and the Licensee. Any agreed-upon changes to the APP will be reported to Commission for review and approval.

Justification

Utility poles and transmission line structures can benefit raptors by providing perch and /or nesting structures in areas where few natural perches or nest sites are available. These same structures can pose a threat to raptors and migratory birds through electrocution and collision with conductors and lines. Avian electrocutions and collisions with power lines have been documented nearly as long as utilities have provided power to the public and industry (APLIC 2006, 1996, and 1994; APLIC and USFWS 2005). Since the 1970s, utilities, the Service, and the National Audubon Society have worked together to document avian mortalities and to develop methods to reduce electrocutions and line collisions. In 2005, the Avian Power Line Interaction Committee and the Service jointly published *Avian Protection Plan Guidelines* to assist utilities in developing voluntary APPs. Therefore, the applicant has proposed to implement its APP to minimize any impacts of the Project on resident and migrant birds for the duration of the new license term.

10(j) Recommendation No. 10: State, Federal, and Tribal Coordination

Within 6 months of license issuance, the Licensee shall, for the conservation, development, and mitigation of damages to fish and wildlife resources, create a forum of State and Federal resource agencies and Tribes to ensure consistency and timely coordination between the implementation of the Wells AFA/HCP and the environmental measures incorporated into the new license for the protection, mitigation, and enhancement of non-Plan species. The forum shall serve as the primary means of consultation and coordination between the applicant, the resource agencies, and the Tribes in connection with the implementation studies and associated management plans set forth the new license. Specifically, the forum shall: (1) promote information exchange; (2) review the applicant's choice of specific implementation and monitoring measures and approve their selection; (3) periodically adjust the applicant's PM&Es, as needed to meet the goals and objectives established in the Plans; (4) adjust schedules and dates for performance; (5) determine when the goals and objectives have been achieved and the PM&Es adequately implemented; and (6) determine whether the applicant is satisfactorily carrying out their responsibilities for the term of the new license.

Justification

Forum coordination will be an essential element in the successful implementation of terms and conditions for non-Plan species (i.e., bull trout, Pacific lamprey, and white sturgeon) and the Wells AFA/HCP. This coordination will ensure that the implementation of environmental measures for the benefit of Plan Species is consistent with the implementation of environmental measures for non-Plan species.

The Wells AFA/HCP is the major focus of the applicant's proposed fisheries PM&E measures. Coordinating the implementation of survival standards for salmon and steelhead with the PM&E measures for the non-Plan species will require a major effort amongst the Licensee, resource agency parties, and tribal constituents, and will need to be carefully planned and executed to be successful. The complexity of the Wells AFA/HCP and measures designed for non-Plan species will necessitate the intensive involvement of agency, tribal and non-governmental organization (NGO) biologists to coordinate changing management philosophies, new technologies, and compliance with changing policies. State, federal, and tribal coordination will provide guidance, special expertise, and information exchange through the term of the next license.

FISH PASSAGE

The Columbia River is the largest and most complex river system within the state of Washington and hosts some of the largest anadromous fish runs in the Pacific Northwest. Despite the highly fragmented nature of the Columbia River Basin, the mid-Columbia River remains an important corridor for the movement and dispersal of many anadromous and resident fish populations. Six species of anadromous fish must pass upstream and downstream through the Wells Hydroelectric Project (Project) to complete their life cycle: spring, summer, and fall Chinook salmon, sockeye salmon, coho salmon, steelhead, and Pacific lamprey. Resident native species that are found in the Project area include rainbow trout, bull trout, white sturgeon, and mountain whitefish. Complete descriptions of these fish and their life histories can be found in the Final License Application for the Wells Hydroelectric Project (FERC Project No. 2149-131). The FLA was filed with the Commission by Douglas PUD on May 31, 2010.

Prior Fish Passage Efforts

The Project was constructed with two adult fishways to provide upstream fish passage for anadromous and resident salmonids. The adult fishways incorporated the technology that was used at Federal Columbia River Basin dams constructed in the 1950s and 1960s. Current adult fishway technology uses the same principles.

Fishway technology for the downstream passage of juvenile salmonids, lamprey, and resident fish was not available at the time the Project was constructed. At that time, the annual spring runoff in the Columbia River provided high flows and subsequent spill allowing juvenile fish to pass the Project through the spillways. The spillways at Wells Dam have been operated as a downstream passage route since 1967. Research and development of fishway technology for downstream

passage began at the Federal projects in the late 1960s and continues to this day. Research and development of downstream passage operations and facilities began at the Project in the 1980s.

The Project's juvenile bypass system (JBS) was completed in 1989. The unique hydrocombine design of the Wells Dam allowed for a JBS utilizing the existing spillways at the Project. The JBS was developed to guide downstream migrating juvenile steelhead and salmon away from the turbines and into the spillways. The JBS has an efficiency of 92.0 percent for spring migrants and 96.2 percent for summer migrants (Douglas PUD 2010) and is the most efficient bypass system on the mainstem Columbia River. The system was developed by modifying the upper portions of spillways 2, 4, 6, 8, and 10. Each spillway has three sections. The JBS modifies the two outside spill sections with solid steel barriers and the middle section with a slotted steel barrier. The slotted barrier has an opening that is 16 feet wide and 72 feet deep. During bypass operations, the gates on spillways 2, 4, 6, 8, and 10 are opened approximately one foot when an adjacent generating unit is operating. Spillways 2 and 10 are also configured to allow passage through either the ice trash sluiceways or through the bottom spill gates.

Since most juvenile salmon and steelhead migrate near the surface, with the help of the JBS they successfully pass Wells Dam and avoid the turbine intakes located below the bypass entrance. The JBS is in operation annually from mid-April until late August. Because all 11 spillways may be needed during emergency operations, the bypass barriers are designed to collapse when the spillway gates are opened more than four feet. The continued operation of the JBS is coordinated through consultation and participation of the signatories to the Wells Anadromous Fish Agreement and the Wells AFA/HCP. The Wells AFA/HCP committee that oversees the operations of the bypass system is the Wells HCP Coordinating Committee (WCC). The members of the WCC include the Licensee, the Service, NOAA Fisheries, WDFW, Colville Tribes, and the Yakama Nation.

Anadromous Salmon and Steelhead

The applicant proposes to operate the Project's upstream and downstream fish passage facilities in accordance with the terms of the Wells AFA/HCP. Under those terms, the Licensee prepares an annual Bypass Operation Plan (BOP) in consultation with the WCC.¹ The BOP provides the details of operations and procedures necessary to safely pass juvenile fish through the Project to meet the standards agreed upon in the Wells AFA/HCP. The Adult Fish Passage Plan found in Section 15 of the Wells AFA/HCP contains all pertinent operation, maintenance, inspection and reporting procedures for the upstream fish passage facilities (Douglas PUD 2010). The *Annual Gas Abatement Plan* submitted to the Washington State Department of Ecology (Ecology) describes the total dissolved gas abatement operations and monitoring protocols for each year (Douglas PUD 2010).

The continued use of the Project's existing upstream fish passage facilities constitutes the Applicant's proposal for moving adult anadromous salmon and steelhead (Plan Species) upstream.

¹. The WCC approves measurement and evaluation programs to determine when the Licensee has met the Wells HCP objectives of No Net Impact and 91% combined adult and juvenile project survival for Plan Species.

Wells Dam has two adult fish ladders, one on each side of the dam immediately adjacent to the right and left banks of the Columbia River. The ladders were built during the original construction of the dam. Each ladder contains 73 fishway weirs. They descend one foot per pool and discharge a constant 48 cubic feet per second of river flow through the ladder. This discharge flows from one pool to another over the walls and through submerged orifices. Depending on the tailwater elevation, fish can swim over many of the lower weir walls without the need to pass through the orifices. The upper 17 pools hold more water, have larger orifices and are used to control the amount of water flowing through the lower sections of the ladder.

Each of the two fish ladders has a single entrance for fish, which is located at the downstream end of each ladder's collection gallery. Each entrance opens into a collection gallery that is flooded with water in excess of that flowing in the fish ladders. This excess "attraction water" is designed to attract migrating fish into the collection gallery and ultimately into the fish ladder. As fish move up the ladders, infrastructure for sorting and trapping fish are located adjacent to Pool 40. This area is equipped with a holding box and adult Passive Integrated Transponder (PIT) tag detectors. In addition, the traps are also equipped with slide gates to either retain fish or return them to the ladder. This area is used for brood stock collection, for fish tagging and for other research opportunities. Pool 64 contains facilities for fish counting, including a viewing window, video cameras and a light panel. Pools 67 and 68 are equipped with PIT tag detection devices that interrogate each fish for a PIT tag and, once detected, will record the presence of each tag as the fish ascend the ladders.

The Wells AFA/HCP requires preparation of an annual report that describes progress toward achieving the performance standard of No Net Impact (NNI) for each Plan Species. The NNI standard consists of two components: 1) 91 percent combined adult and juvenile project survival achieved by project improvement measures implemented within the geographic area of the project, and 2) 9 percent compensation for unavoidable project mortality provided through hatchery and tributary programs, with 7 percent compensation provided through hatchery programs and 2 percent through tributary programs. Section 4.1 of the Wells AFA/HCP states that, given the present inability to differentiate between the sources of adult mortality, initial compliance with the combined adult and juvenile survival standard will be based on the measurement of 93 percent juvenile project survival or 95 percent juvenile dam passage survival (described further in Section 4.1.2 of the Wells AFA/HCP).

The applicant has implemented various elements of the Wells AFA/HCP to provide downstream passage for Plan Species including spill management and the continued operation and maintenance of the permanent JBS. The Wells AFA/HCP relies on the JBS as the primary method for increasing juvenile salmonid survival. As described in the Wells AFA/HCP, the Applicant will continuously operate the system from April 12 to August 26 each year to protect the juvenile fish migration.

A major feature of the Wells AFA/HCP is what is termed a "phased implementation plan" to achieve the survival standards. These phases have been described in previous Wells AFA/HCP annual reports to the Commission (Douglas PUD 2010). Since February 2005, steelhead, sub-

yearling Chinook, yearling Chinook, and sockeye salmon are in Phase III (either Standard Achieved or Additional Juvenile Studies; Table 1). In December 2007, coho salmon were designated as in Phase III (Additional Juvenile Studies). In 2008, land and cash worth a total value of \$600,000 were transferred to the YN pursuant to the Applicant's coho mitigation agreement, which completes the applicant's coho mitigation obligation through 2017.

Under Phase III conditions (Standard Achieved), the Applicant is required to re-evaluate survival at 10-year intervals. The study plan for the 10-year "verification" of survival was approved by the WCC at their July 23, 2009 meeting. The Verification Study Plan is designed to re-assess the survival of yearling spring migrants in 2010. The current Phase Designations of all Plan Species covered by the Wells HCP are shown in Table 3. No changes in Phase Designations occurred in 2009.

Table 3. Phase Designations for Achieving Survival Standards at Wells Dam.

Plan Species	Phase Designation	Date
Upper Columbia River (UCR) steelhead	Phase III (Standard Achieved)	February 22, 2005
UCR yearling spring Chinook	Phase III (Standard Achieved)	February 22, 2005
UCR subyearling summer/fall Chinook	Phase III (Additional Juvenile Studies)	February 22, 2005
Okanogan River sockeye	Phase III (Additional Juvenile Studies)	February 22, 2005
Methow River coho	Phase III (Additional Juvenile Studies)	December 12, 2007

As in past years, operation of the JBS is typically guided by the BOP and criteria contained within the Wells AFA/HCP. Spring bypass spill usually occurs from April 12 through June 13, and summer bypass spill occurs from June 14 through August 26, as implemented per the Pre-season Operating Plan agreed to by the WCC. The year 2009 was the sixth year that operation of the JBS was guided by representatives of the WCC.

The initiation and termination of the JBS in 2009 was guided by the WCC. Operation of the JBS was strictly guided by the BOP contained within Section 4.3 of the Wells HCP Agreement. The initiation and termination dates for the JBS in 2009 were based upon 21 years of hydroacoustic and 14 years of species composition information collected on run patterns of juvenile hatchery and wild salmonids at Wells Dam. Based upon an analysis of the run-timing information at Wells Dam, the WCC agreed to initiate the JBS on April 12. The analysis indicated that on average initiating the JBS on April 12th would provide a non-turbine passage alternative for 95.5 percent of the spring emigrants. Similarly, shutting down the JBS on August 26, on average would provide bypass operation for 95 percent of the summer emigrants. The JBS operated continuously

during the transition period between the spring and summer juvenile fish migrations. For accounting purposes, the end of the 2009 spring bypass season was June 13 at 2400 hours and the beginning of the summer bypass season was June 14 at 0000 hours.

Flows at Wells Dam during the 2009 juvenile plan species migration (April – August) were at 83 percent of the fifteen-year average. Operationally, all five bypass bays were available and were utilized at one time or another during the outmigration. Operation of the JBS throughout the season was guided by the BOP contained within Section 4.3 of the Wells HCP.

The spring bypass season started on April 12 at 0000 hours and ran continuously through June 13 at 2400 hours. The spring bypass operated for a total of 63 days and utilized a total discharge of 1.09 million acre-feet (MAF), or 6.5 percent of total project discharge. During the spring bypass operation, there was forced spill during 22 hours or 1.5 percent of the season. The maximum total spill occurred on April 14 at 2100 hours with a volume of 50.0 thousand cubic feet per second (kcfs) and a total river flow of 199.3 kcfs.

Summer bypass started on June 14 at 0000 hours and ran until August 26 at 2400 hours, for a total of 74 days. There was 1.08 MAF, or 7.2 percent of the total discharge dedicated to summer bypass. During the summer bypass operating period, there were 18 hours or 1.0 percent of the hours with forced spill. The maximum total spill occurred on June 22 at 2100 hours with a volume of 29.4 kcfs and a total river flow was 214.0 kcfs.

The Wells AFA/HCP acknowledges that no scientific methodology currently exists that would allow the WCC to assess adult project survival for Plan Species (presumed to be 98 percent). This is because available methods are unable to differentiate between mortality caused by the project versus other sources of non-detection (such as mortality from natural causes, injuries resulting from passage at downstream projects, or injuries sustained by harvest activities; or fish not detected for other reasons, such as spawning in locations downstream from Wells Dam). However, the WCC is able to evaluate information to assess whether or not there is a high likelihood that the adult survival rates are being achieved. Table 4 details detections at Priest Rapids Dam of known-origin adult steelhead and Chinook salmon that were PIT-tagged, the number of those adults redetected at Wells Dam, the estimated conversion rate (Priest Rapids Dam to Wells Dam), and average per project (i.e., four dams and four reservoirs) conversion rates.

These conversion rates are best viewed as a minimum survival estimate between the two detection sites because they encompass mortalities from all sources and non-detected fish (as described above) between the two detection sites. They do not include any indirect or delayed mortality that might occur upstream of Wells Dam (the redetection site). The per-project conversion rate exceeded 98 percent for steelhead and spring and summer Chinook salmon (that is, mortalities from all sources averaged less than 2 percent through each project). Data for fall Chinook and sockeye are not available. As noted above, this 2 percent figure reflects a combination of mortality attributable to both non-project related causes (e.g., recreational and tribal harvest, tailrace spawning, and disease) and dam passage, as well as non-detections resulting from straying and spawning below Wells Dam. For this reason, it is highly probable that the actual conversion rate

for adult Plan Species exceeds the 98 percent per-project assumption set forth in the Wells AFA/HCP.

Table 4. Adult Conversion Rates for All Available Release Groups

Stock Species	Priest Rapids Dam	Wells Dam	Priest Rapids to Wells Total Conversion Rate	Priest Rapids to Wells Average Per Project Conversion Rate
All Releases Summer Steelhead 2004-2009	5,480	5,102	93.0%	98.2%
All Releases Spring Chinook 2003-2009	451	420	93.1%	98.2%
All Releases Summer Chinook 2003-2004	15	14	93.3%	98.3%

Bull Trout

The applicant proposes to operate the Project's upstream and downstream fish passage facilities, in accordance with the terms of the Wells AFA/HCP and as the principle method for providing upstream and downstream passage for bull trout. Upstream passage is provided by two fish ladders with entrances in the tailrace and exits in the forebay. Downstream passage routes available to bull trout include: (1) passage over spillways during spill periods (generally between April and August); (2) the JBS consisting of five modified spillways (operated between April 12 and August 26); (3) two adult fish ladders; and (4) any of ten turbine generator units. In addition, the Applicant's proposed BTMP includes the development and implementation of a monitoring program to identify potential project-related impacts on the upstream and downstream passage of adult and sub-adult bull trout through the Wells Dam and any incidental take of bull trout.

If upstream or downstream passage problems are identified (as agreed to in consultation with the Service), then the applicant will collaborate with the Service, NOAA Fisheries, and the Aquatic SWG to identify and implement reasonable and feasible options to modify upstream and downstream passage facilities or operations that reduce the identified impacts to bull trout passage. The monitoring program is described in the applicant's Aquatic Settlement Agreement and associated comprehensive BTMP (Douglas PUD 2010). The BTMP was developed to satisfy the requirements of the Service's Biological Opinion (BO) for the relicensing of the Project. While the applicant's proposed BTMP contains provisions which attempt to quantify incidental take of bull trout at the Project as defined in the ESA, the proposed BTMP also contains specific fish

passage components intended to provide safe, timely, and effective passage of this fish species at the Project. The Service's fishway prescription for bull trout was developed in coordination with the applicant, BIA, NOAA Fisheries, the Aquatic SWG, and associated tribes, and is materially consistent with the ASA and the proposed BTMP.

To assess the effectiveness of passage measures for bull trout at the Project's fishway facilities, the Service fishway prescription for bull trout stipulates performance standards. The passage performance standards are a 90% Passage Success and a 95% Passage Survival passage metric for upstream and downstream passage of bull trout. This performance standard is based on the applicant's eight years of bull trout radio telemetry data collected at the Project, in which tagged bull trout passed safely upstream and downstream of the Project (BioAnalysts, Inc., 2004; LGL and Douglas PUD 2008a). This information demonstrates that during the six years of study and eight years of telemetry monitoring from 2001 through 2008 by the applicant, a total of 93 upstream passage events by radio-tagged bull trout were detected at Wells Dam. Out of all 93 upstream passage events recorded, no bull trout injury or mortality attributable to passage was observed at the Project. During the six years of study and eight years of telemetry monitoring, a total of 27 downstream passage events took place at Wells Dam by radio-tagged bull trout. Radio-tagged bull trout passed downstream through the turbines or spillways; and, no downstream passage events were recorded via the fishways. Out of all the downstream passage events recorded at the Project, no bull trout injury or mortality was observed. This standard is also supported by numerous years of data related to the upstream and downstream passage of salmon and steelhead species (Douglas PUD 2010).

At this time, the Service has determined that the Project provides safe, effective, and timely passage for bull trout based upon studies by LGL and Douglas PUD 2008a. The applicant's BTMP also includes a monitoring program designed to ensure the applicant maintains compliance with these performance standard metrics for bull trout through the period of the new license.

Pacific Lamprey

To address the Project's effects on Pacific lamprey, the applicant proposes to implement the Wells Pacific Lamprey Management Plan (PLMP) (Douglas PUD 2010). To provide upstream passage for adult lamprey, the applicant will continue to operate the Project's upstream fish passage facilities in accordance with the terms of the Wells AFA/HCP. In addition, the Applicant will: (1) continue to conduct annual adult fish passage monitoring in the Wells Dam fishways, using the most current technology available, (2) count upstream migrating adult Pacific lamprey 24 hours per day during the adult fishway monitoring season (May 1-November 15); (3) provide count data on upstream migrating adult Pacific lamprey; (4) identify, design, and implement any reasonable upstream passage modifications (structural and/or operational) to improve passage performance for Pacific lamprey without negatively impacting the passage performance of adult anadromous salmonids; and (5) implement a one-year study to verify the effectiveness of the adult fish ladders with respect to adult lamprey passage every ten years, or on an as-needed basis, for the term of the new license. If upstream passage problems are identified, then the applicant will collaborate with the Service, NOAA Fisheries, Aquatic SWG, Wells HCP Coordinating Committee, and the BIA to

identify and implement reasonable and feasible measures to modify the upstream passage facilities or operations to reduce the identified impacts to adult Pacific lamprey passage.

No specific facilities, structures, or devices are proposed to provide for the downstream passage of juvenile lamprey at this time. This is, in part, because the methods to evaluate juvenile lamprey passage and survival are still under development, and the form and function of an effective downstream fishway for juvenile lamprey are currently unknown. However, the bottom-oriented primitive lampreys are morphologically different (lacking scales, opercula, ray-fins, vertebrae, swim bladder, etc.) than species belonging to the taxonomic class Osteichthyes (bony fish). Therefore, lamprey likely move and behave differently than more rigid bodied salmon. Research has shown that juvenile lampreys do not show any immediate external injuries or mortality from rapid pressure changes (e.g., ~400 kPa to ~5 kPa in 0.1 seconds) that would be experienced through turbine passage. Likewise, juvenile lampreys do not suffer any ill effects from shear stress levels (rates of strain 1,220 to 1,830 cm/s/cm) known to injure and kill juvenile salmon and shad. Lampreys' soft flexible bodies may give them resiliency to safely move through the hydrocombine turbines at Wells Dam; although this has not been definitively proven. Wells Dam also lacks submerged bar screens, which are currently the only identified threat to downstream migrating juvenile lampreys in other dams (Douglas PUD 2010).

Consistent with the PLMP and our prescription for fishways, the applicant will develop a downstream juvenile lamprey passage study. The study shall determine whether a negative impact exists at Wells Dam, and if present, quantify the impact. Upon approval of the Service, the Licensee shall implement the study. Under the PLMP, the Applicant would also continue to operate the JBS for downstream passage of juvenile lamprey and conduct salvage activities consistent with the Wells AFA/HCP; investigate and, if available, implement regionally-accepted and appropriate technologies shown to be effective at other dams; participate in Pacific lamprey work groups in order to support regional conservation efforts; and implement measures to determine juvenile lamprey presence/absence and relative abundance in areas that may be affected by ongoing or future project operations.

The Service's fishway prescription for Pacific lamprey was developed in coordination with the applicant, BIA, resource agencies, and associated tribes, and is materially consistent with the ASA and associated PLMP. To assess the effectiveness of the proposed fishway measures for Pacific lamprey in the PLMP and this prescription, the applicant must demonstrate that the Project provides safe, timely, and effective passage for all life history stages of Pacific lamprey; however, the effective passage standard applies to adult lamprey. The PLMP and this prescription explains that the safe, timely, and effective passage standard will be achieved when the applicant has demonstrated that adult Pacific lamprey passage is at levels at least as high as those demonstrated at other mid-Columbia River PUD hydroelectric projects. Further, the applicant will be required to achieve steady progress towards improving the adult passage standard for the duration of the new license.

Based upon current evidence, the Project does not provide safe, effective, and timely passage for the upstream passage of Pacific lamprey (LGL and Douglas PUD 2008b; p. 1). This conclusion is

based on the applicant's Pacific lamprey radio telemetry data at the Project, in which tagged adult Pacific lamprey encountered difficulty negotiating the approach velocities at the entrances of the upstream fishways at the Project (LGL and Douglas PUD 2008b; p. 1). Currently, the Project's approach velocities at the entrance of the fishways are beyond the swimming capabilities of adult Pacific lamprey. Average velocities (~3.0 m/s) currently experienced in the fishway entrances at Wells Dam are well above the known swimming capability of adult lampreys (Robichaud *et al.* 2009). Swimming performance of adult lampreys has been reported at 0.9 m/s (sustained swimming) to 2.1 m/s (burst speeds) (Mesa *et al.* 2003; Daigle *et al.* 2006).

In an effort to remedy this passage impediment for Pacific lamprey, the applicant has conducted a fishway entrance velocity reduction study to assess the benefits of reduced fishway velocities on the upstream passage of Pacific lamprey. The remote sensing study involved evaluation of actual lamprey movement through the fishway. While results of that study are encouraging towards understanding changes needed to improve upstream passage of adults (Johnson *et al.* 2010), the applicant will be finishing a second year of the study to decipher whether a velocity reduction at the fishway entrance should be made a permanent, seasonal operational change at the Project. Once the applicant has achieved safe, timely, and effective upstream passage for adult Pacific lamprey at the Project, the Applicant will also need to demonstrate steady progress towards improving its passage levels for adult Pacific lamprey. The PLMP also includes a monitoring program which will assist the applicant in verifying compliance with this performance standard, once fishway improvements have been completed.

Formulation of Preliminary Prescriptions for Fishways

Resource Goals

The Service's management and mitigation goal is to optimize fish passage conditions at the Project for upstream and downstream migrants as necessary to fulfill the objectives of the Federal, regional, and State management plans described above. This goal includes avoiding and minimizing the loss of fish from the operation of fish passage facilities, including, fish screens, and bypass systems. To meet this goal, the Licensee must maintain project facilities that provide an overall survival and passage efficiency rate for upstream and downstream migrants that are at the highest level technically and reasonably feasible.

The Service's objective is to maintain the full complement of native fish within their historic habitats within the mid-Columbia River Basin. To accomplish this objective, successful fish passage for salmon, Pacific lamprey and bull trout (non-Plan Species) is needed throughout the term of the new license. This goal is consistent with the direction of existing State and Federal agency management plans. These state and Federal plans call for the recovery and long-term sustainability of harvestable native fishery populations, including Pacific lamprey, as a priority. Accomplishing this goal will require the operation and maintenance of effective, safe, and timely fishways at the Project. Without the continued operation of effective fishways at the Project, negative impacts to resident and anadromous species will occur. Effective and well-maintained fishways will also ensure that the Project does not impair future and collective efforts to restore

fish production in the mid-Columbia River Basin and will contribute to the maintenance of healthy fish populations.

Preliminary Fishway Prescription Items

The Service's preliminary prescriptions for fishways comply with the Service's obligations as a signatory to the Wells AFA/HCP. Section 9.5.2 of the Wells AFA/HCP provides:

“This Agreement shall constitute the Parties' terms, conditions and recommendations for Plan Species under Sections 10(a), 10(j) and 18 of the Federal Power Act and the Fish and Wildlife Coordination Act, provided that NMFS and USFWS maintain the right to reserve their authorities under Section 18 of the Federal Power Act on the condition that such reserved authority may be exercised only in the event that this agreement terminates provided further that, the Parties as part of their terms, conditions and recommendations under Section 10(a) of the Federal Power Act may request that Plan Species protection or mitigation Measures contained in a competing license application be included as a condition of the District's new long-term Project license.”

Below we prescribe the construction, operation, maintenance, and effectiveness monitoring of upstream and downstream fishways for Plan Species as set forth in the Wells AFA/HCP. We also prescribe upstream and downstream passage for bull trout and for Pacific lamprey. As a preliminary step in prescribing downstream passage for juvenile lamprey, the applicant will be obligated to develop and implement a downstream juvenile lamprey passage study once it is determined that substantial evidence exists either at the Project or at a dam with similar features or conditions (e.g., turbines, spillways, and bypass) to Wells, indicating that downstream migrating juvenile lamprey may be negatively impacted at the Project. The applicant will then implement operational or structural changes at the Project to remedy the negative impact.

Our preliminary prescriptions for these non-Plan Species are generally consistent with the measures proposed by the Applicant. These measures include the continued operation of the Project's adult fishways and JBS and the implementation of management plans designed to evaluate and improve upstream and downstream passage for bull trout and Pacific lamprey over the term of the new license. Because some portions of the management plan for Pacific lamprey remain general in scope and depend upon the outcome of various studies and evaluations yet to be developed and performed, our preliminary prescriptions require that any necessary studies, evaluations, and final fishway design details be developed in consultation with the appropriate fisheries agencies and tribes to ensure that steady progress is made and that safe, timely, and effective passage conditions are achieved in a judicious manner.

Target Species

To ensure the timely contribution of the fishways to ongoing and future fish restoration and recovery activities in the mid-Columbia River Basin, the fishways will be operated to

accommodate upstream and downstream passage of spring, summer, and fall Chinook salmon, coho salmon, sockeye salmon, steelhead, bull trout, and Pacific lamprey for the term of the new license. The Service expects the Licensee to employ all measures necessary and appropriate to maximize upstream and downstream fish passage effectiveness for these target fish species over the full range of river flows for which the project maintains operational control. The need for upstream and downstream fishways for white sturgeon or any other fish to be managed, enhanced, protected, or restored to the mid-Columbia River Basin has not been determined at this time, due to the lack of information necessary to support the prescription of fishways. Other general prescriptions for fishways are specified to provide for the modification, inspection, and maintenance of upstream and downstream fishways, during the term of the license. The Service also retains the right to review and approve all final fishway plans and specifications prior to construction of new facilities. However, for Plan Species, the review and approval of final fishway plans and specifications may be exercised only in the event that the Wells AFA/HCP is terminated. As long as the Wells AFA/HCP is in effect, the review and approval of final fishway plans and specifications will be accomplished through the WCC, of which the Service is a member.

Timeline for the Construction, Operation, and Maintenance of Fishways

Because the Wells Dam is an existing project, most of the structures, facilities, and devices for the upstream and downstream passage of fish are in place, including related project operations and measures which are necessary for the effectiveness of those structures, facilities, and devices. For Plan Species, any sequencing necessary for the installation of additional structural or operational modifications, monitoring, and effectiveness evaluations are guided pursuant to the terms of the Wells AFA/HCP and the decisions of the WCC. Therefore, our prescriptions for fishways for Plan Species take effect upon license issuance. Likewise, our prescriptions for fishways for bull trout take effect upon license issuance because the timing of fishway construction, operation, maintenance, and effectiveness monitoring is guided by the applicant's BTMP. The Service's fishway prescription provides further specificity regarding how the applicant will achieve the fishway performance standards for this species.

For the upstream passage of adult Pacific lamprey, we prescribe the general approach that is outlined in the applicant's PLMP (Douglas PUD 2010), and the Service's fishway prescription provides further detail regarding how the Applicant will achieve steady progress towards maintaining the designated fishway performance standard for this species. Initially, the PLMP requires the investigation and implementation of reasonable modifications to the existing fishway that have been proven successful at other hydroelectric projects in the Columbia River basin and are thought to be potentially success at Wells Dam. If subsequent evaluations indicate that those modifications do not provide adult lamprey passage performance similar to other mid-Columbia River hydroelectric dams, then additional evaluations and the implementation of other fishway modifications are required. Within one year after license issuance or as soon as practicable and in coordination with the Aquatic SWG, if safe, timely, and effective adult lamprey upstream passage has not been achieved, then the installation of additional or new adult lamprey volitional passage facilities, structures, devices, or operational modifications will be required. The goal for all adult

measures contained in the applicant's PLMP is to achieve adult lamprey passage performance similar to other mid-Columbia River hydroelectric dams (Douglas PUD 2010). As a preliminary step in prescribing downstream passage for juvenile lamprey, the applicant will be obligated to develop and implement a downstream juvenile lamprey passage study once it is determined that substantial evidence exists either at the Project or at a dam with similar features or conditions (e.g., turbines, spillways, and bypass) to Wells, indicating that downstream migrating juvenile lamprey may be negatively impacted at the Project. The applicant will then implement operational or structural changes at the Project to remedy the negative impact.

PRELIMINARY PRESCRIPTIONS FOR FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT

Section 18 of the Federal Power Act (16 U.S.C. 811) states in part that: "the [Federal Energy Regulatory] Commission shall require the construction, maintenance, and operation by a Licensee of such fishways as may be prescribed by the Secretary of Commerce or the Secretary of Interior." Section 1701(b) of the National Energy Policy Act of 1992, P.L. 102-486, provides guidance as to what constitutes a fishway. Section 1701(b) states: "The items which may constitute a 'fishway' under section 18 for the safe and timely upstream and downstream passage of fish shall be limited to physical structures, facilities, or devices necessary to maintain all life stages of such fish, and project operations and measures related to such structures, facilities, or devices which are necessary to ensure the effectiveness of such structures, facilities, or devices, for such fish."

On May 8, 2002, the Director of the Fish and Wildlife Service signed the Interagency Guidance for the Prescription of Fishways (USFWS 2002c). This guidance is intended to increase the consistency and predictability of the Service's prescription process and to help clarify the process for applicants, Licensees, the Commission and other stakeholders. The guidance relies upon the section 1701(b) fishway definition. Of particular importance in this case, and for Pacific lamprey in particular, is the ability to prescribe studies for collecting additional information if necessary to more thoroughly develop the fishways. By prescribing the collection of additional information, we can be sure that the final fishway designs will be best suited to the local area and the unique attributes of any given project

The preliminary prescriptions for fishways herein are intended to be materially consistent with the terms of Wells Aquatic Settlement Agreement. Consistent with the D.C. Circuit's 2006 opinion, the Commission must include any prescription filed on behalf of the Secretary of the Interior without modification in any license issued for the Project. *See City of Tacoma v. FERC*, 460 F.3d 53 (D.C. Cir. 2006). A summary of the Department's preliminary prescriptions is presented in Enclosure B to this document.

Accordingly, pursuant to Section 18 of the Federal Power Act (16 U.S.C. 811), the Department of the Interior hereby prescribes the construction, operation, and maintenance of upstream and downstream fishways for the Wells Hydroelectric Project, Project No. 2149-152, as follows:

1.0 Reservation of Authority to Prescribe Fishways

Authority is reserved for the Department of the Interior (Department) to prescribe the evaluation, construction, operation, and maintenance of fishways at the Wells Hydroelectric Project, Project No. 2149, as appropriate, including measures to determine, ensure, or improve the effectiveness of such fishways, pursuant to Section 18 of the Federal Power Act, as amended. This reservation includes, but is not limited to, authority to prescribe fishways for spring, summer, and fall Chinook salmon, sockeye salmon, coho salmon, steelhead, bull trout, Pacific lamprey, white sturgeon, and any other fish to be managed, enhanced, protected, or restored to the mid-Columbia River during the term of the license. Pursuant to Section 9.5.2 of the Wells Anadromous Fish Agreement and Habitat Conservation Plan (Wells AFA/HCP), such reserved fish passage authority may be exercised for Plan Species (spring, summer and fall Chinook salmon, sockeye salmon, coho salmon, and steelhead) only in the event that the Wells AFA/HCP is terminated.

2.0 General Prescriptions for Fishways

The following general prescriptions for fishways apply to the operation and maintenance of both upstream and downstream fishways at the Wells Hydroelectric Project, subject to the provisions of Section 9.5.2 of the Wells AFA/HCP and in accordance with the Wells Hydroelectric Project Aquatic Settlement Agreement (Aquatic SA), including the Bull Trout Management Plan (BTMP), Pacific Lamprey Management Plan (PLMP), and the White Sturgeon Management Plan (WSMP), and are prescribed to ensure the effectiveness of the fishways pursuant to Section 1701(b) of the National Energy Policy Act (P.L. 102-486, Title XVII, 106 Stat. 3008):

2.1 The Department reserves the authority to modify, replace or amend these prescriptions for fishways at any time before license issuance, as well as any time during the term of the license, after review of new substantial evidence in support of a change to the fishway prescription.

2.2 The U.S. Fish and Wildlife Service (FWS), pursuant to the authorities of the Department, retains the right to review and approve all documents (e.g., plans, specifications, measures, study designs, reports) developed pursuant to this Prescription prior to construction and implementation of any required measure. These approvals will be provided by the Regional Director, FWS, Portland, OR. To facilitate this review and approval process, correspondence between the Director and the Licensee will occur through:

Assistant Project Leader
 U.S. Fish and Wildlife Service
 Central Washington Field Office
 215 Melody Lane, Suite 119
 Wenatchee, WA 98801

2.3 The Licensee shall manage the Wells Hydroelectric Project and all its associated features, including the dam, spillways, powerhouse, and reservoir, to provide effective upstream and downstream fish passage over the full range of river flows for which the project maintains operational control. The Licensee shall manage the Project's upstream and downstream fish passage facilities subject to the provisions in this Prescription and in accordance with the Licensee's AFA/HCP Adult Fish Passage Plan and Bypass Operations Plan, and with the Wells Hydroelectric Project Aquatic SA, including the BTMP, PLMP, and the WSMP.

3.0 Upstream and Downstream Fishways and Salmon and Steelhead (Plan Species): To provide for the safe, timely, and effective upstream and downstream passage of fish at the Wells Project, the Licensee shall provide for the construction, operation, maintenance, and effectiveness monitoring of upstream and downstream fishways for Plan Species as set forth in the Wells AFA/HCP, filed with the FERC on November 24, 2003, and as approved by the Federal Energy Regulatory Commission (FERC) in 2004 at 107 FERC ¶61,280 and ¶61,281.

4.0 Upstream and Downstream Passage for Adult and Sub-Adult Bull Trout (BTMP Section 4.1.1): The Licensee shall provide upstream passage for bull trout through the existing upstream fishways and downstream passage for bull trout through the existing downstream bypass system consistent with the AFA/HCP and Aquatic SA. Both upstream fishway facilities (located on the west and east shores) shall be operational year round with maintenance occurring on each fishway at different times during the winter to ensure that one upstream fishway is always operational. Operation of the downstream passage facilities for bull trout shall be consistent with bypass operations for Plan Species identified in the Wells AFA/HCP.

4.1 Bull Trout Passage Performance Standard: The Licensee shall implement the upstream and downstream measures contained in the Wells Hydroelectric Project BTMP to provide safe, timely, and effective upstream and downstream passage for adult and sub-adult bull trout at the Wells Hydroelectric Project. "Safe, timely and effective" passage shall be achieved when the Licensee has demonstrated that the survival and passage success rates for adult marked fish are greater than 95% and greater than or equal to 90%, respectively, and when passage studies demonstrate that the fishway facilities at Wells Dam do not impede the passage of bull trout. To ensure that safe, timely and effective passage at Wells Dam is maintained during the term of the new license, the Licensee shall implement the following bull trout upstream and downstream measures consistent with the BTMP.

4.2 Upstream Fishway Counts (BTMP Section 4.1.2): The Licensee shall continue to conduct video monitoring in the Wells Dam fishways from May 1 through November 15 to count and provide information on the population size of upstream moving bull trout.

4.3 Sub-Adult Bull Trout Monitoring (BTMP Section 4.2.3): If at any time during the new license term, sub-adult bull trout are observed passing Wells Dam in

significant numbers (>10 per calendar year), the Licensee shall, in consultation with the U.S. Fish and Wildlife Service (FWS) and the Wells Aquatic Settlement Agreement Work Group (Aquatic SWG), implement reasonable and appropriate methods for monitoring sub-adult bull trout. Specifically, the Licensee may modify counting activities, and shall continue to provide PIT tags and equipment, and facilitate training to enable fish sampling entities to PIT tag sub-adult bull trout when these fish are collected incidentally during certain fish sampling operations. This activity shall occur the following year of first observation of sub-adult bull trout (>10 per calendar year), in consultation with the FWS and the Aquatic SWG.

- 4.4 Upstream Fishway Operations Criteria (BTMP Section 4.1.3): The Licensee shall continue to operate the upstream fishway at Wells Dam in accordance with criteria outlined in the Wells AFA/HCP and this Prescription.
- 4.5 Bypass Operations Criteria (BTMP Section 4.1.4): The Licensee shall continue to operate the bypass system at Wells Dam in accordance with criteria outlined in the Wells AFA/HCP and this Prescription.
- 4.6 Bull Trout Upstream and Downstream Passage Evaluation (BTMP Section 4.2.1): The Licensee shall periodically monitor upstream and downstream passage of bull trout through Wells Dam and in the Wells Reservoir through the implementation of a radio-telemetry study. Specifically, in years 5 and 10 of the new license, and continuing every ten years thereafter during the new license term, the Licensee shall conduct a one-year monitoring study to verify continued compliance with the bull trout passage performance standard (Section 4.1 of this Prescription). These monitoring studies shall employ the same study protocols and radio-telemetry assessment methodologies used at Wells Dam in 2006 and 2007. If the monitoring results demonstrate continued compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then no additional actions are needed. If the monitoring results demonstrate that the Licensee is no longer in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the monitoring study will be replicated to confirm the results. If the results after two years of monitoring demonstrate that the Licensee is no longer in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the Licensee shall, pursuant to Section 4.8 of this Prescription, develop and implement additional measures to improve bull trout passage until compliance with the bull trout passage performance standard (Section 4.1 of this Prescription) is achieved. If the bull trout counts at Wells Dam increase more than two times the existing 5-year average or if there is a significant change in the operation of the fish ladders, bypass, or hydrocombine, then the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the Wells HCP Coordinating Committee (WCC), shall conduct a one-year, follow-up monitoring study to verify continued compliance with the bull trout performance standard (Section 4.1 of this Prescription).

- 4.7 Adult Bull Trout Passage Evaluation at Brood Stock Collection Facilities (BTMP Section 4.2.2): The Licensee shall, beginning in year one of the new license, conduct a one-year radio-telemetry evaluation to assess upstream and downstream passage of adult bull trout at the adult salmon and steelhead brood stock collection facilities associated with the Wells AFA/HCP, including but not limited to, the Twisp weir adult collection facility. The Licensee shall capture and tag up to 10 adult, migratory bull trout (>400mm) per assessment per year and use fixed receiver stations upstream and downstream of the collection facilities. Assessments shall employ the same study protocols and radio-telemetry assessment methodologies used at Wells Dam in 2006 and 2007. If the evaluation demonstrates that the Licensee is not in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the evaluation will be replicated to confirm the results. If the results after two years of evaluation demonstrate that the Licensee is not in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the Licensee shall develop, implement, and evaluate additional measures, in consultation with the FWS, WCC, and the Aquatic SWG, until the FWS determines that the bull trout passage performance standard has been achieved. At such time as the FWS determines the bull trout passage performance standard has been achieved, the implementation of this Condition shall be integrated into the one-year telemetry monitoring program that is to be conducted every ten years (beginning in year 10 of the new license) at Wells Dam as identified in Section 4.6 above.
- 4.8 Measures to Modify the Upstream Fishway and Downstream Bypass if Adverse Impacts on Bull Trout are Identified (BTMP Section 4.3): If monitoring (Section 4.6 of this Prescription) identifies upstream or downstream passage problems for bull trout, the Licensee shall, in consultation with the FWS, WCC, and the Aquatic SWG, identify, design, implement, and evaluate reasonable and feasible measures to modify the upstream fishway, downstream bypass, or operations to reduce the identified impacts to bull trout passage. Study protocols and radio-telemetry assessment methodologies prescribed above in Sections 4.6 and 4.7 of this Prescription, shall be used to evaluate the effectiveness of any additional measures implemented to reduce the identified impacts to bull trout passage. Upon completion of the evaluation, the FWS and the National Marine Fisheries Service (NMFS), in consultation with the Aquatic SWG, and the WCC, will determine whether the proposed measure should be made permanent, removed, or modified.
- 5.0 Upstream Passage of Pacific Lamprey: The Licensee shall implement the upstream passage measures contained in the Wells Hydroelectric Project PLMP to provide upstream passage for Pacific lamprey at the Wells Dam. Specifically, the Licensee shall implement the Pacific lamprey upstream passage measures identified in the PLMP consistent with the following:
- 5.1 Upstream Passage Performance Standard: The Licensee shall, in consultation with the U.S. Fish and Wildlife Service (FWS), the Aquatic SWG, and the U.S Bureau of Indian

- Affairs (BIA), continue to evaluate upstream Pacific lamprey passage until safe, timely and effective passage has been achieved. This “safe, timely and effective” standard will be achieved when the Licensee has demonstrated that lamprey passage is at levels at least as high as other mid-Columbia River PUD hydroelectric projects, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, until specific Pacific lamprey passage performance standards have been adopted by the FWS. At such time, the Licensee shall demonstrate compliance with the new standards.
- 5.1.1 Steady Progress (PLMP Section 4.1.5): The Licensee shall exhibit steady progress, as agreed to by the FWS, in consultation with the Aquatic SWG and the BIA, towards achieving this Upstream Passage Performance Standard (Section 5.1 of this Prescription). Once compliance is achieved, the Licensee shall only be required to implement activities pursuant to Section 5.8, Periodic Monitoring.
- 5.2 Upstream Fishway Operations (PLMP Section 4.1.1): The Licensee shall operate the existing upstream fishways at Wells Dam in accordance with the operation criteria for anadromous salmonids, bull trout, and Pacific lamprey as outlined in the Wells AFA/HCP and the Wells Aquatic SA, as approved and/or amended by the FWS and the National Marine Fisheries Service (NMFS) in consultation with the WCC, the Aquatic SWG, and the BIA.
- 5.3 Salvage Activities During Ladder Maintenance Dewatering (PLMP Section 4.1.2): The Licensee shall continue to implement the Adult Fish Passage Plan and associated Adult Ladder Dewatering Plan as required by the Wells AFA/HCP. All Pacific lamprey that are encountered during dewatering operations shall be salvaged consistent with the protocol identified in the Wells AFA/HCP. Any adult lamprey that are captured during salvage activities shall be released upstream of Wells Dam, unless otherwise determined by the FWS, in consultation with the Aquatic SWG, and the BIA. The Licensee shall ensure the FWS, Aquatic SWG, and the BIA are made aware of salvage activities, and the Licensee shall also provide a summary of salvage activities in the Wells Aquatic SA annual report.
- 5.4 Upstream Fishway Counts for Pacific Lamprey (PLMP Section 4.1.3): The Licensee shall continue to conduct annual fish passage monitoring in the Wells Dam adult fishways using the best technology commercially available, to count and provide information on upstream migrating adult Pacific lamprey 24-hours per day during the adult fishway monitoring season (May 1 – November 15).
- 5.5 Lamprey Counts (PLMP Section 4.1.3): Based upon information collected from the evaluations of fishway measures prescribed in Section 5.6 below, the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop techniques for enumerating lamprey through all upstream passage routes at Wells Dam. Potential measures to improve counting accuracy may include the development of a correction factor based upon data collected during passage evaluations (PLMP Sections 4.1.6 and

- 4.1.7) or utilization of an alternative passage route as a counting facility for adult Pacific lamprey.
- 5.6 Fishway Measures to Improve Upstream Passage for Adult Pacific Lamprey (PLMP Section 4.1.1, Section 4.1.4, and Section 4.1.5): The Licensee shall, in consultation with the FWS, WCC, the Aquatic SWG, and the BIA, implement and evaluate the measures contained in Sections 4.1.1, 4.1.4, and 4.1.5 of the PLMP to achieve safe, timely and effective passage of Pacific lamprey. Measures to improve upstream passage for adult Pacific lamprey shall include the following components:
- 5.6.1 Upstream Passage Improvement Literature Review (PLMP Section 4.1.4 and 4.1.5): The Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, complete a literature review on the effectiveness of upstream passage measures (i.e., lamprey passage systems, plating over diffuser grating, modifications to orifices, rounding sharp edges, adult fishway operational changes, etc.) implemented at other Columbia and Snake river hydroelectric facilities. The literature review will be conducted to help in the selection of reasonable measures that may be implemented to improve adult lamprey passage at Wells Dam.
- 5.6.2 Implementation of Adult Fishway Measures (PLMP Section 4.1.5): The Licensee shall, in consultation with the FWS, the WCC, the Aquatic SWG and the BIA, identify, design, implement, and evaluate operational and/or structural measures as needed to achieve and maintain safe, timely and effective passage for Pacific lamprey during the new license term. Passage measures will be designed to improve passage performance for Pacific lamprey through the Wells Dam adult fishways without negatively impacting the passage performance of adult anadromous salmonids. Each measure implemented shall be evaluated by the Licensee to determine its effect on adult Pacific lamprey. All evaluations shall be designed in consultation with the FWS, the Aquatic SWG, and the BIA. Upon completion of any specific evaluation, the FWS and the NMFS, in consultation with the WCC, the Aquatic SWG and the BIA, will determine whether the proposed measure should be made permanent, removed, or modified. The specific components of these operational and structural passage measures and their schedules for implementation shall include the following:
- Adult Fishway Inspection (PLMP Section 4.1.5): Within one year of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall conduct an adult fishway inspection with the FWS, the Aquatic SWG, the BIA, and regional lamprey passage experts to identify, prioritize, and implement measures to improve adult lamprey passage and enumeration at Wells Dam. Additional

inspections will be conducted by the Licensee at the request of the FWS, the Aquatic SWG, and the BIA consistent with winter dewatering operations.

- Operations Study Plan (PLMP Section 4.1.1): Within one year of license issuance or as soon as practicable following consultation with the FWS, the WCC, the Aquatic SWG and the BIA, the Licensee shall develop an Operations Study Plan (OS Plan) that specifically identifies operational measures to be evaluated, the proposed monitoring strategy, implementation timeline and criteria for success. The plan shall include a component to evaluate the effects of lamprey measures on salmon.
- Entrance Efficiency (PLMP Section 4.1.5): Within one year of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall develop a Lamprey Entrance Efficiency Plan (LEE Plan) for evaluating operational and physical ladder entrance measures intended to increase lamprey passage into the adult fishway without significantly impacting the passage of adult salmonids.
- Diffuser Gratings (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that diffuser gratings within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If diffuser gratings do adversely affect passage, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, the Licensee shall develop a plan and schedule acceptable to the FWS for modifying the gratings as needed to address impacts.
- Transition Zones (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that transition zones within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If transition zones do adversely affect passage, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, the Licensee shall develop a plan and schedule acceptable to the FWS for addressing the impacts.
- Ladder Traps and Exit Pools (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that lamprey ladder traps and exit pools within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If ladder traps and/or exit pools do adversely affect passage, the Licensee shall, in consultation with FWS, the Aquatic SWG, and the BIA, develop a plan and schedule acceptable to the FWS for addressing the impacts.

- 5.7 Adult Pacific Lamprey Upstream Passage Evaluation (PLMP Section 4.1.6): Within 5 years of license issuance or within 1 year of implementing all measures identified in Section 5.6 (whichever comes first), the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, conduct a one-year study to verify the effectiveness of such measures on upstream passage performance of adult Pacific lamprey through Wells Dam. If results demonstrate that passage rates at Wells Dam are below the Upstream Passage Performance Standard (Section 5.1 of this Prescription), the Licensee shall, in consultation with the FWS, the WCC, the Aquatic SWG, and the BIA, design, evaluate and implement additional measures to improve upstream Pacific lamprey passage. The Licensee shall continue to design, evaluate and implement measures, in consultation with the FWS, the Aquatic SWG, and the BIA, until the Upstream Passage Performance Standard (Section 5.1 of this Prescription) is achieved.
- 5.8 Periodic Monitoring (PLMP Section 4.1.7): Once adult Pacific lamprey standards have been achieved, the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, periodically monitor adult Pacific lamprey passage performance through Wells Dam adult fishways to verify continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription). Specifically, every ten years after compliance has been achieved, or as determined necessary by the FWS in consultation with the Aquatic SWG, and the BIA, the Licensee shall implement a one-year study to demonstrate continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription). If study results demonstrate continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), then no additional actions are needed. If the results demonstrate that the Licensee is no longer in compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), then the upstream passage study will be replicated to confirm the results. If the results after two years of study demonstrate that the Licensee is no longer in compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop and implement additional measures to improve upstream Pacific lamprey passage consistent with Sections 5.6 and 5.7 of this Prescription.
- 6.0 Downstream Passage of Juvenile Pacific Lamprey (PLMP Section 4.2.4): At such time as the U.S. Fish and Wildlife Service (FWS), in consultation with the Aquatic SWG, and the U.S. Bureau of Indian Affairs (BIA), determines that substantial evidence exists either at Wells Dam or at a dam with similar features or conditions (e.g., turbines, spillways, and bypass) to Wells, indicating that downstream migrating juvenile lamprey may be negatively impacted at Wells Dam, then the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop a downstream juvenile lamprey passage study. The study shall determine whether a negative impact exists at Wells Dam, and if present, quantify the impact. Upon approval of the FWS, the Licensee shall implement the study.

If statistically valid study results indicate that Wells Dam has a substantive negative impact on downstream migrating juvenile lamprey, then the Licensee, in consultation with FWS, the WCC the Aquatic SWG, and the BIA, shall identify and implement regionally accepted measures (e.g., operational or structural changes, translocation, artificial production, habitat enhancement) to address such impacts. If operational or structural changes are needed to improve passage survival of juvenile lamprey, then those changes shall be coordinated with the WCC prior to development and implementation.

The Department does not object to the issuance of a new license for the Project provided our comments, recommendations, and prescriptions are incorporated into the new license. The Department reserves the right to amend the preliminary comments, recommendations, and prescriptions contained in this document, if warranted, based on the results of new information and conclusions developed during the Commission's environmental analysis.

The Department looks forward to working with the Commission, Douglas PUD, and other parties involved in the integrated licensing process to produce a new license that conserves and develops existing fish and wildlife resources and other environmental values. Specific questions or requests for clarification regarding any fish and wildlife comments, preliminary prescriptions, and recommendations contained herein may be directed to Mr. Ken S. Berg, Manager, U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, 510 Desmond Lane S.E., Suite 102, Lacey, Washington, 98503-1263, Telephone: (360) 753-9440. Questions regarding recreation resources may be directed to Ms. Susan Rosebrough, National Park Service, 909 First Avenue, Seattle, Washington, 98104, Telephone: (206) 220-4121. If you have any other questions, please contact me at (503) 326-2489.

We appreciate the opportunity to comment.

Sincerely,



Preston A. Sleeper
Regional Environmental Officer

Enclosed as stated

cc: Service List

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Enclosure A

**UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE**

**INDEX TO THE ADMINISTRATIVE RECORD
IN SUPPORT OF THE
PRELIMINARY PRESCRIPTIONS FOR FISHWAYS FILED
PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT
FOR THE
WELLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2149-152**

This is the Index for the Administrative Record in support of the Department of the Interior's Preliminary Prescriptions for Fishways submitted for filing with the Commission on or about October 8, 2010. This Administrative Record supports the Department's Preliminary Prescriptions made pursuant to Section 18 of the Federal Power Act for the Wells Hydroelectric Project, FERC Project 2149-152.

All public records, scientific studies, documents, references, or other information cited, referenced, considered or relied upon in support of the Department's Preliminary Prescriptions for Fishways are indexed below and are contained in the Commission's formal docket for the Wells Hydroelectric Project, and may be accessed through the Commission's eLibrary records information system at <http://www.ferc.gov/docs-filing/elibrary.asp>.

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B. Other Documentation Cited, References, Considered, or Relied Upon in Support of the Department's Prescription for Fishways:

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Enclosure B

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE

PRELIMINARY PRESCRIPTIONS FOR FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT FOR THE WELLS HYDROELECTRIC PROJECT FERC PROJECT NO. 2149-152

(To ensure clarity and consistency, these prescriptions adopt the terms, language, and definitions used in the Aquatic Settlement Agreement, the FLA, and the management plans accompanying the Wells Hydroelectric Project Aquatic Settlement Agreement. To the extent possible, we have provided cross-references to the applicable sections and/or sub-sections of the Settlement Agreement and its management plans.)

PRELIMINARY PRESCRIPTIONS FOR FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT

1.0 Reservation of Authority to Prescribe Fishways

Authority is reserved for the Department of the Interior (Department) to prescribe the evaluation, construction, operation, and maintenance of fishways at the Wells Hydroelectric Project, Project No. 2149, as appropriate, including measures to determine, ensure, or improve the effectiveness of such fishways, pursuant to Section 18 of the Federal Power Act, as amended. This reservation includes, but is not limited to, authority to prescribe fishways for spring, summer, and fall Chinook salmon, sockeye salmon, coho salmon, steelhead, bull trout, Pacific lamprey, white sturgeon, and any other fish to be managed, enhanced, protected, or restored to the mid-Columbia River during the term of the license. Pursuant to Section 9.5.2 of the Wells Anadromous Fish Agreement and Habitat Conservation Plan (Wells AFA/HCP), such reserved fish passage authority may be exercised for Plan Species (spring, summer and fall Chinook salmon, sockeye salmon, coho salmon, and steelhead) only in the event that the Wells AFA/HCP is terminated.

2.0 General Prescriptions for Fishways

The following general prescriptions for fishways apply to the operation and maintenance of both upstream and downstream fishways at the Wells Hydroelectric Project, subject to the provisions of Section 9.5.2 of the Wells AFA/HCP and in accordance with the Wells Hydroelectric Project Aquatic Settlement Agreement (Aquatic SA), including the Bull Trout Management Plan (BTMP), Pacific Lamprey Management Plan (PLMP), and the White Sturgeon Management Plan (WSMP), and are prescribed to ensure the

effectiveness of the fishways pursuant to Section 1701(b) of the National Energy Policy Act (P.L. 102-486, Title XVII, 106 Stat. 3008):

2.1 The Department reserves the authority to modify, replace or amend these prescriptions for fishways at any time before license issuance, as well as any time during the term of the license, after review of new substantial evidence in support of a change to the fishway prescription.

2.2 The U.S. Fish and Wildlife Service (FWS), pursuant to the authorities of the Department, retains the right to review and approve all documents (e.g., plans, specifications, measures, study designs, reports) developed pursuant to this Prescription prior to construction and implementation of any required measure. These approvals will be provided by the Regional Director, FWS, Portland, OR. To facilitate this review and approval process, correspondence between the Director and the Licensee will occur through:

Assistant Project Leader
U.S. Fish and Wildlife Service
Central Washington Field Office
215 Melody Lane, Suite 119
Wenatchee, WA 98801

2.3 The Licensee shall manage the Wells Hydroelectric Project and all its associated features, including the dam, spillways, powerhouse, and reservoir, to provide effective upstream and downstream fish passage over the full range of river flows for which the project maintains operational control. The Licensee shall manage the Project's upstream and downstream fish passage facilities subject to the provisions in this Prescription and in accordance with the Licensee's AFA/HCP Adult Fish Passage Plan and Bypass Operations Plan, and with the Wells Hydroelectric Project Aquatic SA, including the BTMP, PLMP, and the WSMP.

3.0 Upstream and Downstream Fishways and Salmon and Steelhead (Plan Species): To provide for the safe, timely, and effective upstream and downstream passage of fish at the Wells Project, the Licensee shall provide for the construction, operation, maintenance, and effectiveness monitoring of upstream and downstream fishways for Plan Species as set forth in the Wells AFA/HCP, filed with the FERC on November 24, 2003, and as approved by the Federal Energy Regulatory Commission (FERC) in 2004 at 107 FERC ¶61,280 and ¶61,281.

4.0 Upstream and Downstream Passage for Adult and Sub-Adult Bull Trout (BTMP Section 4.1.1): The Licensee shall provide upstream passage for bull trout through the existing upstream fishways and downstream passage for bull trout through the existing downstream bypass system consistent with the AFA/HCP and Aquatic SA. Both upstream fishway facilities (located on the west and east shores) shall be operational year round with maintenance occurring on each fishway at different times during the winter to ensure that one upstream fishway is always operational. Operation of the downstream passage facilities for bull trout shall be consistent with bypass operations for Plan Species identified in the Wells AFA/HCP.

- 4.1 Bull Trout Passage Performance Standard: The Licensee shall implement the upstream and downstream measures contained in the Wells Hydroelectric Project BTMP to provide safe, timely, and effective upstream and downstream passage for adult and sub-adult bull trout at the Wells Hydroelectric Project. “Safe, timely and effective” passage shall be achieved when the Licensee has demonstrated that the survival and passage success rates for adult marked fish are greater than 95% and greater than or equal to 90%, respectively, and when passage studies demonstrate that the fishway facilities at Wells Dam do not impede the passage of bull trout. To ensure that safe, timely and effective passage at Wells Dam is maintained during the term of the new license, the Licensee shall implement the following bull trout upstream and downstream measures consistent with the BTMP.
- 4.2 Upstream Fishway Counts (BTMP Section 4.1.2): The Licensee shall continue to conduct video monitoring in the Wells Dam fishways from May 1 through November 15 to count and provide information on the population size of upstream moving bull trout.
- 4.3 Sub-Adult Bull Trout Monitoring (BTMP Section 4.2.3): If at any time during the new license term, sub-adult bull trout are observed passing Wells Dam in significant numbers (>10 per calendar year), the Licensee shall, in consultation with the U.S. Fish and Wildlife Service (FWS) and the Wells Aquatic Settlement Agreement Work Group (Aquatic SWG), implement reasonable and appropriate methods for monitoring sub-adult bull trout. Specifically, the Licensee may modify counting activities, and shall continue to provide PIT tags and equipment, and facilitate training to enable fish sampling entities to PIT tag sub-adult bull trout when these fish are collected incidentally during certain fish sampling operations. This activity shall occur the following year of first observation of sub-adult bull trout (>10 per calendar year), in consultation with the FWS and the Aquatic SWG.
- 4.4 Upstream Fishway Operations Criteria (BTMP Section 4.1.3): The Licensee shall continue to operate the upstream fishway at Wells Dam in accordance with criteria outlined in the Wells AFA/HCP and this Prescription.
- 4.5 Bypass Operations Criteria (BTMP Section 4.1.4): The Licensee shall continue to operate the bypass system at Wells Dam in accordance with criteria outlined in the Wells AFA/HCP and this Prescription.
- 4.6 Bull Trout Upstream and Downstream Passage Evaluation (BTMP Section 4.2.1): The Licensee shall periodically monitor upstream and downstream passage of bull trout through Wells Dam and in the Wells Reservoir through the implementation of a radio-telemetry study. Specifically, in years 5 and 10 of the new license, and continuing every ten years thereafter during the new license term, the Licensee shall conduct a one-year monitoring study to verify continued compliance with the bull trout passage performance standard (Section 4.1 of this Prescription).

These monitoring studies shall employ the same study protocols and radio-telemetry assessment methodologies used at Wells Dam in 2006 and 2007. If the monitoring results demonstrate continued compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then no additional actions are needed. If the monitoring results demonstrate that the Licensee is no longer in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the monitoring study will be replicated to confirm the results. If the results after two years of monitoring demonstrate that the Licensee is no longer in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the Licensee shall, pursuant to Section 4.8 of this Prescription, develop and implement additional measures to improve bull trout passage until compliance with the bull trout passage performance standard (Section 4.1 of this Prescription) is achieved. If the bull trout counts at Wells Dam increase more than two times the existing 5-year average or if there is a significant change in the operation of the fish ladders, bypass, or hydrocombine, then the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the Wells HCP Coordinating Committee (WCC), shall conduct a one-year, follow-up monitoring study to verify continued compliance with the bull trout performance standard (Section 4.1 of this Prescription).

- 4.7 Adult Bull Trout Passage Evaluation at Brood Stock Collection Facilities (BTMP Section 4.2.2): The Licensee shall, beginning in year one of the new license, conduct a one-year radio-telemetry evaluation to assess upstream and downstream passage of adult bull trout at the adult salmon and steelhead brood stock collection facilities associated with the Wells AFA/HCP, including but not limited to, the Twisp weir adult collection facility. The Licensee shall capture and tag up to 10 adult, migratory bull trout (>400mm) per assessment per year and use fixed receiver stations upstream and downstream of the collection facilities. Assessments shall employ the same study protocols and radio-telemetry assessment methodologies used at Wells Dam in 2006 and 2007. If the evaluation demonstrates that the Licensee is not in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the evaluation will be replicated to confirm the results. If the results after two years of evaluation demonstrate that the Licensee is not in compliance with the bull trout passage performance standard (Section 4.1 of this Prescription), then the Licensee shall develop, implement, and evaluate additional measures, in consultation with the FWS, WCC, and the Aquatic SWG, until the FWS determines that the bull trout passage performance standard has been achieved. At such time as the FWS determines the bull trout passage performance standard has been achieved, the implementation of this Condition shall be integrated into the one-year telemetry monitoring program that is to be conducted every ten years (beginning in year 10 of the new license) at Wells Dam as identified in Section 4.6 above.
- 4.8 Measures to Modify the Upstream Fishway and Downstream Bypass if Adverse Impacts on Bull Trout are Identified (BTMP Section 4.3): If monitoring (Section 4.6 of this Prescription) identifies upstream or downstream passage problems for

bull trout, the Licensee shall, in consultation with the FWS, WCC, and the Aquatic SWG, identify, design, implement, and evaluate reasonable and feasible measures to modify the upstream fishway, downstream bypass, or operations to reduce the identified impacts to bull trout passage. Study protocols and radio-telemetry assessment methodologies prescribed above in Sections 4.6 and 4.7 of this Prescription, shall be used to evaluate the effectiveness of any additional measures implemented to reduce the identified impacts to bull trout passage. Upon completion of the evaluation, the FWS and the National Marine Fisheries Service (NMFS), in consultation with the Aquatic SWG, and the WCC, will determine whether the proposed measure should be made permanent, removed, or modified.

5.0 Upstream Passage of Pacific Lamprey: The Licensee shall implement the upstream passage measures contained in the Wells Hydroelectric Project PLMP to provide upstream passage for Pacific lamprey at the Wells Dam. Specifically, the Licensee shall implement the Pacific lamprey upstream passage measures identified in the PLMP consistent with the following:

- 5.1 Upstream Passage Performance Standard: The Licensee shall, in consultation with the U.S. Fish and Wildlife Service (FWS), the Aquatic SWG, and the U.S Bureau of Indian Affairs (BIA), continue to evaluate upstream Pacific lamprey passage until safe, timely and effective passage has been achieved. This “safe, timely and effective” standard will be achieved when the Licensee has demonstrated that lamprey passage is at levels at least as high as other mid-Columbia River PUD hydroelectric projects, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, until specific Pacific lamprey passage performance standards have been adopted by the FWS. At such time, the Licensee shall demonstrate compliance with the new standards.
 - 5.1.1 Steady Progress (PLMP Section 4.1.5): The Licensee shall exhibit steady progress, as agreed to by the FWS, in consultation with the Aquatic SWG and the BIA, towards achieving this Upstream Passage Performance Standard (Section 5.1 of this Prescription). Once compliance is achieved, the Licensee shall only be required to implement activities pursuant to Section 5.8, Periodic Monitoring.
- 5.2 Upstream Fishway Operations (PLMP Section 4.1.1): The Licensee shall operate the existing upstream fishways at Wells Dam in accordance with the operation criteria for anadromous salmonids, bull trout, and Pacific lamprey as outlined in the Wells AFA/HCP and the Wells Aquatic SA, as approved and/or amended by the FWS and the National Marine Fisheries Service (NMFS) in consultation with the WCC, the Aquatic SWG, and the BIA.
- 5.3 Salvage Activities During Ladder Maintenance Dewatering (PLMP Section 4.1.2): The Licensee shall continue to implement the Adult Fish Passage Plan and associated Adult Ladder Dewatering Plan as required by the Wells AFA/HCP. All Pacific lamprey that are encountered during dewatering operations shall be salvaged

- consistent with the protocol identified in the Wells AFA/HCP. Any adult lamprey that are captured during salvage activities shall be released upstream of Wells Dam, unless otherwise determined by the FWS, in consultation with the Aquatic SWG, and the BIA. The Licensee shall ensure the FWS, Aquatic SWG, and the BIA are made aware of salvage activities, and the Licensee shall also provide a summary of salvage activities in the Wells Aquatic SA annual report.
- 5.4 Upstream Fishway Counts for Pacific Lamprey (PLMP Section 4.1.3): The Licensee shall continue to conduct annual fish passage monitoring in the Wells Dam adult fishways using the best technology commercially available, to count and provide information on upstream migrating adult Pacific lamprey 24-hours per day during the adult fishway monitoring season (May 1 – November 15).
- 5.5 Lamprey Counts (PLMP Section 4.1.3): Based upon information collected from the evaluations of fishway measures prescribed in Section 5.6 below, the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop techniques for enumerating lamprey through all upstream passage routes at Wells Dam. Potential measures to improve counting accuracy may include the development of a correction factor based upon data collected during passage evaluations (PLMP Sections 4.1.6 and 4.1.7) or utilization of an alternative passage route as a counting facility for adult Pacific lamprey.
- 5.6 Fishway Measures to Improve Upstream Passage for Adult Pacific Lamprey (PLMP Section 4.1.1, Section 4.1.4, and Section 4.1.5): The Licensee shall, in consultation with the FWS, WCC, the Aquatic SWG, and the BIA, implement and evaluate the measures contained in Sections 4.1.1, 4.1.4, and 4.1.5 of the PLMP to achieve safe, timely and effective passage of Pacific lamprey. Measures to improve upstream passage for adult Pacific lamprey shall include the following components:
- 5.6.1 Upstream Passage Improvement Literature Review (PLMP Section 4.1.4 and 4.1.5): The Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, complete a literature review on the effectiveness of upstream passage measures (i.e., lamprey passage systems, plating over diffuser grating, modifications to orifices, rounding sharp edges, adult fishway operational changes, etc.) implemented at other Columbia and Snake river hydroelectric facilities. The literature review will be conducted to help in the selection of reasonable measures that may be implemented to improve adult lamprey passage at Wells Dam.
- 5.6.2 Implementation of Adult Fishway Measures (PLMP Section 4.1.5): The Licensee shall, in consultation with the FWS, the WCC, the Aquatic SWG and the BIA, identify, design, implement, and evaluate operational and/or structural measures as needed to achieve and maintain safe, timely and effective passage for Pacific lamprey during the new license term. Passage measures will be designed to improve passage performance for Pacific lamprey through the Wells Dam adult fishways without negatively impacting the passage performance of adult anadromous salmonids.

Each measure implemented shall be evaluated by the Licensee to determine its effect on adult Pacific lamprey. All evaluations shall be designed in consultation with the FWS, the Aquatic SWG, and the BIA. Upon completion of any specific evaluation, the FWS and the NMFS, in consultation with the WCC, the Aquatic SWG and the BIA, will determine whether the proposed measure should be made permanent, removed, or modified. The specific components of these operational and structural passage measures and their schedules for implementation shall include the following:

- Adult Fishway Inspection (PLMP Section 4.1.5): Within one year of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall conduct an adult fishway inspection with the FWS, the Aquatic SWG, the BIA, and regional lamprey passage experts to identify, prioritize, and implement measures to improve adult lamprey passage and enumeration at Wells Dam. Additional inspections will be conducted by the Licensee at the request of the FWS, the Aquatic SWG, and the BIA consistent with winter dewatering operations.
- Operations Study Plan (PLMP Section 4.1.1): Within one year of license issuance or as soon as practicable following consultation with the FWS, the WCC, the Aquatic SWG and the BIA, the Licensee shall develop an Operations Study Plan (OS Plan) that specifically identifies operational measures to be evaluated, the proposed monitoring strategy, implementation timeline and criteria for success. The plan shall include a component to evaluate the effects of lamprey measures on salmon.
- Entrance Efficiency (PLMP Section 4.1.5): Within one year of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall develop a Lamprey Entrance Efficiency Plan (LEE Plan) for evaluating operational and physical ladder entrance measures intended to increase lamprey passage into the adult fishway without significantly impacting the passage of adult salmonids.
- Diffuser Gratings (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that diffuser gratings within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If diffuser gratings do adversely affect passage, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, the Licensee shall develop a plan and schedule acceptable to the FWS for modifying the gratings as needed to address impacts.

- Transition Zones (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that transition zones within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If transition zones do adversely affect passage, as determined by the FWS, in consultation with the Aquatic SWG and the BIA, the Licensee shall develop a plan and schedule acceptable to the FWS for addressing the impacts.
- Ladder Traps and Exit Pools (PLMP Section 4.1.5): Within five years of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall demonstrate that lamprey ladder traps and exit pools within the adult fishways at Wells Dam do not adversely affect passage of adult Pacific lamprey. If ladder traps and/or exit pools do adversely affect passage, the Licensee shall, in consultation with FWS, the Aquatic SWG, and the BIA, develop a plan and schedule acceptable to the FWS for addressing the impacts.

5.7 Adult Pacific Lamprey Upstream Passage Evaluation (PLMP Section 4.1.6): Within 5 years of license issuance or within 1 year of implementing all measures identified in Section 5.6 (whichever comes first), the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, conduct a one-year study to verify the effectiveness of such measures on upstream passage performance of adult Pacific lamprey through Wells Dam. If results demonstrate that passage rates at Wells Dam are below the Upstream Passage Performance Standard (Section 5.1 of this Prescription), the Licensee shall, in consultation with the FWS, the WCC, the Aquatic SWG, and the BIA, design, evaluate and implement additional measures to improve upstream Pacific lamprey passage. The Licensee shall continue to design, evaluate and implement measures, in consultation with the FWS, the Aquatic SWG, and the BIA, until the Upstream Passage Performance Standard (Section 5.1 of this Prescription) is achieved.

5.8 Periodic Monitoring (PLMP Section 4.1.7): Once adult Pacific lamprey standards have been achieved, the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, periodically monitor adult Pacific lamprey passage performance through Wells Dam adult fishways to verify continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription). Specifically, every ten years after compliance has been achieved, or as determined necessary by the FWS in consultation with the Aquatic SWG, and the BIA, the Licensee shall implement a one-year study to demonstrate continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription). If study results demonstrate continued compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), then no additional actions are needed. If the results demonstrate that the Licensee is no longer in compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), then the upstream passage study will be replicated to confirm the results. If the results after two years of study demonstrate

that the Licensee is no longer in compliance with the Upstream Passage Performance Standard (Section 5.1 of this Prescription), the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop and implement additional measures to improve upstream Pacific lamprey passage consistent with Sections 5.6 and 5.7 of this Prescription.

- 6.0 Downstream Passage of Juvenile Pacific Lamprey (PLMP Section 4.2.4): At such time as the U.S. Fish and Wildlife Service (FWS), in consultation with the Aquatic SWG, and the U.S. Bureau of Indian Affairs (BIA), determines that substantial evidence exists either at Wells Dam or at a dam with similar features or conditions (e.g., turbines, spillways, and bypass) to Wells, indicating that downstream migrating juvenile lamprey may be negatively impacted at Wells Dam, then the Licensee shall, in consultation with the FWS, the Aquatic SWG, and the BIA, develop a downstream juvenile lamprey passage study. The study shall determine whether a negative impact exists at Wells Dam, and if present, quantify the impact. Upon approval of the FWS, the Licensee shall implement the study.

If statistically valid study results indicate that Wells Dam has a substantive negative impact on downstream migrating juvenile lamprey, then the Licensee, in consultation with FWS, the WCC the Aquatic SWG, and the BIA, shall identify and implement regionally accepted measures (e.g., operational or structural changes, translocation, artificial production, habitat enhancement) to address such impacts. If operational or structural changes are needed to improve passage survival of juvenile lamprey, then those changes shall be coordinated with the WCC prior to development and implementation.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Public Utility District No. 1 of Douglas County)	FERC Project No. 2149-152
)	
Notice of Application Ready for Environmental)	
Analysis, Soliciting Comments, Recommendations,)	
Preliminary Terms and Conditions, and Preliminary)	
Fishway Prescriptions for the Wells)	
Hydroelectric Project)	

Certificate of Service

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding. Dated on this 6th day of October, 2010.



Preston Sleeper
Regional Environmental Officer
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Portland, Oregon 97205
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Document Content(s)

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