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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
PORTLAND OFFICE
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232-1274

February 14, 2006

Magalie Roman Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

RE: Modified Fishway Prescriptions for Applications for Major New Licenses for the Lewis River Projects: Merwin Project (FERC No. 935), Yale Project (FERC No. 2071), Swift No. 1 Project (FERC No. 2111), and Swift No. 2 Project (FERC No. 2213).

Dear Secretary Salas:

Enclosed are the National Marine Fisheries Service's (NMFS) Modified Fishway Prescriptions for the Merwin Project (FERC No. 935). These modified prescriptions were developed specifically to implement the Settlement Agreement submitted for each of the above-referenced projects on or about December 1, 2004.

On February 4, 2005, NMFS filed the "National Marine Fisheries Service's Motion to Intervene, Comments, Recommended Terms and Conditions, and Preliminary Fishway Prescriptions" containing the fishway prescriptions originally developed in response to the Settlement Agreement. Since that time, NMFS has collaborated with the applicants, agencies, tribes, and other Parties to the Settlement Agreement to draft license articles which are written in language that all parties believe is consistent with the Settlement Agreement. These draft license articles were also intended to form the basis of any modified fishway prescriptions and are adopted in virtually identical language in the enclosed modified prescriptions.

NMFS supports the issuance of new licenses for the Merwin, Yale, Swift No. 1, and Swift No. 2 Projects, provided that the licensees' obligations under the Settlement Agreement, including these fishway prescriptions, are incorporated into the new license without modification. Questions regarding this letter and its enclosure should be directed to Michelle Day at 503-736-4734, or email to michelle.day@noaa.gov.

Sincerely,

For

D. Robert Lohn
Regional Administrator

Enclosure

cc: Service List

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PacifiCorp	)	Merwin Project
	)	FERC No. 935
Application for Major New License	)	
	)	

NATIONAL MARINE FISHERIES SERVICE'S MODIFIED FISHWAY PRESCRIPTIONS

I. Introduction

The U.S. Department of Commerce, National Marine Fisheries Service (NMFS or NOAA Fisheries Service) hereby submits its modified fishway prescriptions, pursuant to Section 18 of the Federal Power Act (FPA), for the relicensing of four private hydropower projects licensed by the Federal Energy Regulatory Commission (FERC or the Commission) on the Lewis River, Washington: the Merwin Project (FERC No. 935), the Yale Project (FERC No. 2071), the Swift No. 2 Project (FERC No. 2213), and the Swift No. 1 Project (FERC No. 2111).

NMFS has statutory responsibility for the protection and enhancement of living marine resources, including anadromous fish and their supporting habitats, under the Endangered Species Act (ESA), 16 USC §1531 et seq.; the Magnuson Stevens Fishery Conservation and Management Act (MSA), 16 USC §1801 et seq.; the Fish and Wildlife Coordination Act , 16 USC §661 et seq.; Reorganization Plan No. 4 of 1970, 84 Stat. 2090; and the National Environmental Policy Act , 42 USC §4321 et seq. The Lewis River Basin supports a number of anadromous fish species under NMFS' jurisdiction. These species include Chinook, chum, and coho salmon, and steelhead trout.

PacifiCorp is the owner of the Merwin, Yale, and Swift No. 1 Projects and the Swift No. 2 Project is owned by the Cowlitz County Public Utility District (Cowlitz PUD); PacifiCorp and Cowlitz PUD have applied to relicense the projects they own. On November 30, 2004, a number of parties, including NMFS, other Federal and State agencies, Indian tribes, and the license applicants entered into a comprehensive settlement agreement concerning license conditions for the protection and enhancement of anadromous fish and other resources affected by the four Projects. On February 4, 2005, NMFS submitted its preliminary fishway prescriptions, along with other terms and conditions, recommendations, and comments. In this filing, NMFS indicated that we would file our modified fishway prescriptions 60 days after the close of comments on the Draft Environmental Impact Statement (DEIS). As the DEIS comment period closed on November 23, 2005, these modified prescriptions were scheduled to be filed on or before January 22, 2006. That filing deadline was recently extended to February 21, 2006.

II. Project Description

The Lewis River Hydroelectric Projects consist of the Merwin Project (FERC No. 935), Yale Project (FERC No. 2071), Swift No. 2 Project (FERC No. 2213), and Swift No. 1 Project (FERC No. 2111) (each individually referred to as a Project and collectively as the Projects) and associated powerhouses, transmission facilities, recreational facilities, hatcheries, reservoirs, canals, and lands within the Projects' boundaries and wildlife lands managed outside the Project Boundaries. PacifiCorp owns the Merwin, Yale, and Swift No. 1 Projects and Cowlitz PUD owns the Swift No 2 Project (the combined Projects of Swift No. 1 and Swift No. 2 are referred to collectively as the Swift Projects). Construction of the Projects began with the Merwin Dam in 1929 and was completed with the construction of Swift No. 1 and Swift No. 2 ending in 1958. The Federal Power Commission issued the first license for Merwin on November 29, 1929.

which expired on November 29, 1979. That license was renewed on October 6, 1983, and was originally due to expire on April 30, 2009, but was accelerated by a Commission order and now expires on April 30, 2006. The original license for Yale was issued on April 24, 1951, and expired on April 30, 2001. The original license for Swift No. 1 was issued on May 1, 1956, and expires on April 30, 2006. The original license for Swift No. 2 was issued on November 29, 1956, effective May 1, 1956, and expires on April 30, 2006.

The North Fork Lewis River Basin lies on the flanks of the southern Cascade Mountains of Washington State. The river flows in a general southwesterly direction from its source on the slopes of Mount Adams and Mount St. Helens to the Columbia River, 19 miles downstream of Vancouver, Washington. Excluding tributaries, the river is 93 miles long and has a total drop of 7,900 ft, the greater part of which is in the upper reaches. From its mouth and up to the Lewis River Hatchery, the river stage is influenced by tides and subsequent backflow from the Columbia River. The area of the drainage basin is 1,050 square miles, with a mean elevation of 2,550 ft. mean sea level (msl). Slopes in the upper portions of the basin are generally steep, resulting from the incision of numerous streams and rivers into the geologically young landscape. Areas to the south of the Merwin Project and downstream along the river are less steep, represented by rolling hills and flat woodland bottomlands.

The following section describes all four hydroelectric projects in the North Fork Lewis River Basin. The Projects begin about 10 miles east of Woodland, Washington. The upstream sequence of the projects from the confluence of the Lewis and Columbia Rivers is as follows: Merwin, Yale, Swift No. 2, and Swift No.1. The Merwin, Yale, and Swift No.1 Projects represent a linked reservoir/powerhouse system covering over 30 miles of the Lewis. The Swift No. 2 Project does not include a dam and reservoir. It uses water directly from the tailrace of

Swift No.1, which flows into a 3.2-mile-long canal that discharges through the Swift No. 2 powerhouse into Yale Lake.

The three-reservoir, four-project system is operated in a coordinated fashion to achieve optimum benefits for power production and flood management, and to provide for natural resources in the basin, such as fish, wildlife, and recreation. The four Projects utilize the water resources within the North Fork Lewis River Basin from elevation 50 ft msl (Merwin Project tailwater) to 1,000 ft msl (Swift No. 1 normal pool). The total usable storage in the reservoirs is 814,000 acre-ft. The total installed capacity for the four Projects is 580 MW.

Merwin Dam and Reservoir

The Merwin Hydroelectric Project is a 136 MW plant owned and operated by PacifiCorp. It is the furthermost downstream project of the four operating on the North Fork Lewis River. Construction of the Merwin Project began in 1929 and was completed with a single unit in 1931. Two additional units were added in 1949 and 1958. Overall, the Project consists of a concrete dam, reservoir, powerhouse, substation, and two transmission lines.

Merwin Dam spans the North Fork Lewis River 21 miles upstream from the confluence with the Columbia River. It is a concrete arch structure with a total crest length of 1,300 ft and a maximum height above its lowest foundation of 314 ft. The dam consists of an arch section 752 ft in crest length, a 75-ft-long gravity thrust block, a 206-ft-long spillway section, and a non-overflow gravity section 242 ft long, followed by a concrete core wall section 20 ft high and extending 25 ft into the bank.

The reservoir formed by Merwin Dam is about 14.5 miles long with a surface area of about 4,000 acres at elevation 239.6 ft msl (full pool). At full pool, the reservoir has a gross storage capacity of about 422,800 acre-ft. Of this amount, 182,600 acre-ft of usable storage is

available between elevation 190 and 239.6 ft msl, with an additional 81,100 acre-ft of usable storage available if the reservoir is lowered to its allowable minimum level of 165 ft msl.

Yale Dam and Reservoir

The Yale Hydroelectric Project is a 134 MW plant owned and operated by PacifiCorp that lies directly upstream of the Merwin Project. Construction of the Yale Project began in 1951 and was completed by 1953. The project consists of a main embankment dam, a saddle dam, a reservoir, penstocks, a powerhouse, and a transmission line. The project is operated in coordination with the other three hydroelectric facilities on the North Fork Lewis River.

Yale Dam is located on the North Fork Lewis River about 30 miles upstream from the confluence with the Columbia River. Yale Dam is a rolled, earthen fill, embankment-type dam with a crest length of 1,305 ft and a height of 323 ft above its lowest foundation point. Its crest elevation is 503-ft msl. The saddle dam is located one-quarter mile west of the main dam and is about 1,600 ft long and 40 ft high with a crest elevation of 503 ft msl. The main dam has a chute-type spillway, located in the right abutment.

Yale Lake is about 10.5 miles long, with a surface area of about 3,800 acres at elevation 490-ft msl (full pool). At full pool, the reservoir has a gross storage capacity of about 401,000 acre-ft. At the minimum pool elevation of 430-ft msl, the reservoir has a capacity of about 190,000 acre-ft.

Swift Dam and Reservoir

The Swift No. 1 Hydroelectric Project is a 240 MW plant owned and operated by PacifiCorp. The Project is the furthermost upstream hydroelectric facility on the North Fork Lewis River, lying directly upstream of the Swift No 2 Hydroelectric Project. Construction of the Swift No. 1 Project began in 1956 and was completed in 1958. It consists of a main

embankment dam, a reservoir, penstocks, a powerhouse, and a transmission line and is operated in coordination with the other three hydroelectric facilities on the North Fork Lewis River.

Swift Dam spans the North Fork Lewis River about 40 miles upstream from the confluence with the Columbia River. It is an earthen fill, embankment-type dam with a crest length of 2,100 ft and a height of 512 ft. Its overflow spillway is located on the left abutment. The reservoir formed by Swift Dam is about 11.5 miles long with a surface area of about 4,680 acres at elevation 1,000-ft msl (full pool). At maximum pool, the reservoir has a gross storage capacity of about 755,000 acre-ft. At the minimum pool elevation of 878-ft msl, the reservoir has a capacity of about 447,000 acre-ft.

Swift No. 2 Hydroelectric Project

The Swift No. 2 Hydroelectric Project is a 70 MW development owned by Cowlitz PUD. The Project lies between the Swift No. 1 and Yale Projects on the North Fork Lewis River. The Swift No. 2 Project consists of a power canal, an intake structure, penstocks, a powerhouse, a tailrace discharge channel, a substation, and a transmission line. The powerhouse is located 3 miles downstream from Swift No. 1. Construction of the Swift No. 2 Project began in 1956 and was completed in 1958. It is operated in coordination with the other three hydroelectric facilities on the North Fork Lewis River.

Power Canal

The Swift No. 2 Power Canal begins at the tailrace of the Swift No. 1 Powerhouse. Water released from the Swift No. 1 Powerhouse immediately enters the 3-mile power canal and is conveyed down the canal to the Swift No. 2 Powerhouse. An ungated side-channel spillway/wasteway prevents canal flows from exceeding the Swift No. 2 hydraulic capacity and maintains the maximum level in the canal.

Water may be released to the bypass reach over this wasteway if flows in the canal exceed the Swift No. 2 hydraulic capacity, or if the gates on the check structure are closed so that the canal downstream of the check structure can be dewatered. Under normal operating conditions, the elevation of the canal waters at the Swift No. 2 intake structure ranges from 601 to 604 ft msl. The canal surface area is about 56 acres and the canal holds about 922 acre-ft of water. The operating capacity of the power canal is 9,000 cfs.

In January 1999, PacifiCorp and Cowlitz PUD filed a request with the Commission for approval of the use of the Commission's Alternative Licensing Procedures (ALP) and for the simultaneous and coordinated processing of the license applications for all four Projects. The purpose of ALP was to facilitate communication and collaboration among parties during the relicensing proceeding. In April 1999, the Commission approved this request and issued an order accelerating the Merwin license expiration to coincide with the other projects (letter from J. Mark Robinson, Director of Licensing and Compliance, FERC, to Dave Leonhardt, PacifiCorp, and Dennis Robinson, Cowlitz PUD; Order Accelerating License Expiration Date, issued April 8, 1999).

An application to relicense the Yale Project was submitted to the Commission in 1999. The Commission granted PacifiCorp's request that processing of the Yale license application be deferred until the applications for Merwin, Swift No. 1, and Swift No. 2 were filed on or before April 30, 2004. The Parties anticipated concurrent environmental review of all four Projects. On April 29 and 30, 1999, PacifiCorp and Cowlitz PUD initiated the collaborative process with a public meeting. A Memorandum of Agreement and Communications Protocol among the Parties was developed for the collaborative process.

Upon securing FERC's approval for the use of ALP, PacifiCorp and Cowlitz PUD convened meetings on April 29-30, 1999, to initiate the collaborative process. After this initial meeting, a series of public meetings were held to establish the structure and ground rules of the process, and the goals and objectives of the participants. Through these meetings, the participants established the Lewis River Hydroelectric Project Relicensing Steering Committee and Resource Workgroups.

The Steering Committee was responsible for overseeing the collaborative process and establishing work group goals and objectives. The Steering Committee established six Resource Groups to study and address particular resource issues: Aquatics, Terrestrial/Land Use, Flood Management, Recreation/Aesthetics, Socioeconomics, and Cultural. The Resource Groups defined resource goals and objectives, developed an approach to achieve those goals and objectives, and provided recommendations to the Steering Committee. The Steering Committee acted on Resource Group recommendations and resolved outstanding issues. Initially, the Resource Groups devised studies to evaluate resource issues; later, they devised conservation measures to address identified resource issues either based on these studies or based on other factors including solutions that would meet all parties' interests.

In March 2002, a Negotiating Group was formed, primarily from Steering Committee members, that developed a Settlement Agreement for carrying out long-term conservation measures for the Projects. Conceptual agreement on settlement measures was reached on January 30, 2004. A Settlement Agreement was signed on November 30, 2004, after nearly three years of intense, interest-based negotiations covering a broad array of resource areas, including fish passage, instream flow, hatcheries and supplementation, aquatic habitat, and monitoring and evaluation.

III. Affected Fish Resources

The Lewis River contains fish from the following ESA-listed Evolutionarily Significant Units (ESU): Lower Columbia River Chinook salmon (fall and spring), Columbia River chum salmon, and Lower Columbia River coho salmon. The Lewis River also contains ESA-listed fish from the Lower Columbia River steelhead distinct population segment. Anadromous fish were blocked at river mile (RM) 21 by the construction of Merwin commencing in 1929 (PacifiCorp and Cowlitz PUD 2000).

Historically, the Lewis River has produced significant numbers of salmonids for harvest by both sport and commercial fisheries. The addition of the Projects to the Lewis River has dramatically reduced fish access to habitat and has resulted in habitat impacts to the mainstem Lewis River below Merwin Dam.

The construction of Merwin Dam blocked a majority of the spawning reaches for spring Chinook salmon (WDF 1990) as well as steelhead and coho salmon (PacifiCorp and Cowlitz PUD 2003). The barrier to effective fish passage created by the Projects prevents natural production of these fish in the majority of the Lewis River Basin. The upper river basin contains most of the lower order tributaries that are important spawning and rearing habitat for these species.

Prior to the construction of Merwin, fall Chinook and chum salmon were thought to have spawned in the mainstem reach that is now under Merwin Reservoir (McIsaac 1990 in PacifiCorp and Cowlitz PUD 2003; Smoker et.al. 1952). WDF (1990) states that, "in 1949, Bryant described the Lewis River as one of the most important producers of coho in the Columbia Basin." Prior to the construction of the dams, fall Chinook salmon were distributed to above Merwin Dam and below the Project, so natural habitat for this population has been

reduced by nearly half. Chum salmon spawned in the lower Lewis River downstream from Merwin Dam. Modified flows as well as other influences of the dams have also affected all of these species' populations and their habitats below Merwin Dam. White sturgeon and smelt are two other important anadromous fish of the Lower Lewis River Basin. Sturgeon occur up to the base of Merwin Dam and probably used more of the Lewis River before construction of the dams. There are reports of sturgeon being found in Lake Merwin; apparently isolated there since construction of the project. Smelt spawn in the lower Lewis River.

Three fish hatcheries have been used in an attempt to mitigate for lost production above Merwin Dam due to the Lewis River Projects. These hatcheries have concentrated the entire watershed's anadromous fish production potential in the reduced quality and quantity of mainstem Lewis River habitat below the project. The remaining wild fish are forced to compete with hatchery production and are often harvested at high hatchery harvest rates, leading to a decline of wild fish.

Fish populations have declined in the Lewis River, and a primary factor in that decline is the blockage of passage. Fall Chinook salmon have not declined as much as the other populations and some years have had large numbers. This may be primarily due to unique ocean migration routes (McIsaac 1990). However, current natural spring Chinook salmon spawning returns to the North Lewis River range from 200 to 1,000 and are almost entirely progeny of hatchery produced fish. Spring Chinook salmon historical adult numbers are estimated to be from 10,000 to 50,000 fish. The fall Chinook salmon current range is from 3,200 to 18,000, and the historical numbers are estimated to be from 18,000 to 20,000. The coho salmon current range is unknown, but it is assumed to be low, and the historical range is estimated to be from 7,500 to 85,000. Chum salmon current natural spawning numbers in the whole Lewis Basin (not

just the North Lewis) are estimated to be less than 100 fish, and historical numbers are estimated to be from 120,000 to 300,000. Summer and winter steelhead in the mainstem North Fork Lewis River are not currently monitored by the State of Washington. Summer steelhead North Lewis natural spawning numbers are presumed to be very low, and historical numbers are estimated to be up to 20,000. Winter steelhead current levels in the North Lewis are unknown, but they are presumed to be very low, and historical numbers are estimated to be from 6,000 to 24,000 (LCFRB 2004).

IV. Resource Management Goals and Objectives

The primary goals of NMFS are to rebuild, and ultimately maintain, self-sustaining anadromous fish runs in the Lewis River Basin, and to utilize fully the available habitat and production capability. These goals apply with respect to species listed under the ESA (Chinook salmon, chum salmon, coho salmon and steelhead), as well as those that are not currently listed but that are affected by continuing project operations or may require listing in the future. The reintroduction outcome goal of the comprehensive aquatics program contained in the Settlement Agreement for those species to be reintroduced above the Projects is to achieve genetically viable, self-sustaining, naturally reproducing, harvestable populations above Merwin Dam greater than the minimum viable populations. In addition, NMFS' modified prescriptions are intended to serve the public interest and meet our environmental trust responsibilities following our statutory obligations under the resource laws that we administer.

NMFS further intends by these prescriptions to achieve the related planning goals and objectives established by State, Federal, and local watershed plans. The Washington Department of Ecology administers section 401 of the Federal Clean Water Act, and has established criteria to protect and improve water quality. Specific criteria pertaining to the Lewis River Projects

include water temperature, turbidity, dissolved oxygen, pH, and total dissolved gas. The U.S. Forest Service (USFS) and Bureau of Land Management (BLM) are responsible for carrying out the Northwest Forest Plan (USFS/BLM 1994). The Lower Columbia Fish Recovery Board (LCFRB) has developed a recovery plan for the Washington State portion of the ESA-listed Lower Columbia salmon and steelhead for use by NMFS and the U.S. Fish and Wildlife Service (USFWS; together, the Services). All of these plans contain provisions which pertain to the protection, mitigation, and enhancement of fish resources in the Lewis River Basin, and the Projects' areas.

V. Changes to Preliminary Prescriptions in Modified Prescriptions

NMFS has made numerous modifications to its preliminary prescriptions. However, all such modifications were devised in collaboration with the license applicants, and other parties to the settlement where possible. Most importantly, all such modifications are intended to better capture the provisions of the Settlement Agreement, without altering the substance of any measure.

NMFS' preliminary prescriptions reflected our effort to capture certain terms of the Settlement Agreement that implicated our mandatory conditioning authority under the FPA, rephrased from the language of the Settlement to what we considered appropriate license language. As is customary, NMFS conducted this exercise on our own, not in collaboration with other parties, using our best judgment as to how to transform language from the Settlement Agreement into license language.

Since that effort, the parties to the Settlement Agreement have developed draft license articles in language that is acceptable to all parties. This effort was done partly because the parties hoped all along to provide the Commission with such draft articles, and partly in response

to the terms and conditions filed by the various agencies and other participants. In the latter case, the preliminary filings demonstrated to the Parties that translating from the Settlement to license articles could create inconsistencies with the Settlement, or at least create disagreement as to which words best capture the obligations. With such concerns in mind, several of the Settlement Parties (including both applicants and NMFS) began extensive collaboration to craft language that worked for all parties as draft license articles and modified prescriptions. The draft license articles filed on December 23, 2005, and January 6, 2006, are the end result of that collaboration.

NMFS' modified fishway prescriptions are drawn directly from the draft license articles. Where an article implicates NMFS' prescriptive authority over fishways, we have adopted the article in virtually identical form as the modified prescription. Throughout the negotiations for the draft license articles, the applicants asked that modified prescriptions use virtually identical language to the draft license articles, which in turn use much of the language of the Settlement Agreement itself. NMFS has attempted to honor that request in crafting the attached modified prescriptions.[1]

Because they are expressions of NMFS' unique authority under section 18 of the FPA, the draft license articles have been changed in the modified prescriptions to specify "the Services" where appropriate to portray accurately the authority at issue. Also, because this exercise is limited to fishways, and because NMFS' jurisdiction does not extend to resident species, we have omitted parts or all of certain draft license articles, provided this could be done without disturbing the meaning of the remaining articles. Finally, while the language of all of the modified prescriptions was developed through collaboration, the final decision as to which

[1] All capitalized terms contained in the attached prescriptions which are defined in the Settlement Agreement are intended to be given the definitions provided in the Settlement Agreement.

elements of the Settlement Agreement constitute "fishways" for the purposes of these modified prescriptions, was made by NMFS.

NMFS believes that the enclosed modified prescriptions and the draft license articles are consistent with the Settlement Agreement and urges the Commission to read them in this manner. As we have stated on numerous occasions, we share the collective desire of the Parties to see the Licensees' obligations under the Settlement Agreement incorporated in their entirety into license articles. The modified prescriptions included herein are offered to further this intent.

VI. Modified Fishway Prescriptions

The following prescriptions were developed in response to the Settlement Agreement filed for the Projects with the Commission on December 1, 2004. These modified prescriptions are intended to implement the Settlement Agreement with respect to anadromous fish resources.

Section 18 of the FPA states in relevant part that, "the 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 the 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."

These mandatory fishway prescriptions are based on the best available biological and engineering information available. NMFS' prescriptions for the Merwin, Yale, Swift No. 1, and Swift No. 2 Projects include structures for upstream and downstream passage, and project

operations, performance standards, outcome goals, and other measures to ensure effective passage. The facilities, measures, and other related provisions were developed in consultation with all parties to the Settlement Agreement, as part of this relicensing proceeding. Each prescription is based on substantial evidence contained in the record. Because these prescriptions are the product of settlement, the rationale for each provision is tied to the rationale for the overall agreement. Where appropriate, additional rationale has been provided in previous filings. NMFS has carefully reviewed these prescriptions, and considers them to fall fully within the scope of its Section 18 authority because they are measures needed to ensure the effectiveness of fishway structures, facilities, or devices.

NMFS hereby prescribes the following license conditions for the construction, operation, and maintenance of upstream and downstream fishways to provide safe, timely, and effective passage around the Merwin, Yale, and Swift No. 1, and 2 Projects. Recognizing that the following prescriptions are consistent with the Settlement Agreement, NMFS respectfully requests, pursuant to its authority under Section 18 of the FPA, that the Commission incorporate into the Project licenses, in their entirety and without modification, the prescriptions included herein.

Article 1: Prescription for Anadromous Fish Reintroduction Outcome Goals

Regarding the stocks of Chinook, steelhead, and coho that are being transported under the Settlement Agreement, the Licensee must implement the relevant PM&E Measures that are the Licensee's obligation in the Settlement Agreement and the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects must implement the relevant PM&E Measures that are shared obligations of the licensees in the Settlement Agreement to achieve the Reintroduction Outcome Goal as described in the Settlement Agreement. The "Reintroduction

Outcome Goal" is to achieve genetically viable, self-sustaining, naturally reproducing, harvestable populations above Merwin Dam greater than minimum viable populations. "Harvest" includes all forms of harvest including, without limitation, commercial, tribal, and recreational. Notwithstanding the previous sentences, the Licensee shall not be responsible for limiting factors that are not related to project effects, e.g. harvest. These Reintroduction Outcome Goals are separate from and have no relationship to the targets listed under Section 8 of the Settlement Agreement relating to numbers of returning hatchery fish.

1.1 Monitoring and Evaluation

The Licensee, together with the licensees for the Yale, Swift No. 1, and Swift No. 2 projects, in Consultation with the Aquatics Coordination Committee (ACC) (including at least the Services), and with the final approval of the Services, must monitor progress for achieving Reintroduction Outcome Goals periodically as set forth in Sections 3.2 and 9 of the Settlement Agreement. The results of such monitoring must be included in the reports on monitoring and evaluation to be provided to the Commission by the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, under Section 9.1 of the Settlement Agreement. The monitoring must rely on the work of regional recovery groups (e.g., the Technical Recovery Team and the Lower Columbia Fish Recovery Board) relating to North Fork Lewis River populations to the extent possible, in combination with the data gathered by the Licensee and the licensees for the Yale, Swift No. 1 and Swift No. 2 projects in accordance with the Settlement Agreement. As contemplated by the Settlement Agreement, the Licensee must supplement such work if needed to determine whether the Reintroduction Outcome Goals have been achieved or whether they are on track to being achieved on a timely basis.

1.2 Phase I Status Check

If the Services determine, on or after the later of (a) the 27th anniversary of Issuance of the last of the Licenses for Swift No. 1, Yale, Merwin, and Swift No. 2 projects, or (b) the 12th year after reintroduction of anadromous fish above Swift No. 1 Dam together with the operation of both the Merwin Upstream Transport Facility, and the Swift Downstream Facility, as provided in the License for the Swift No. 1 project, using the approach developed pursuant to Section 3.1.1 of the Settlement Agreement (such determination process is referred to as the "Phase I Status Check"), that the Reintroduction Outcome Goal has been achieved for each North Fork Lewis River anadromous fish population that is being transported under the Settlement Agreement, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, shall continue to implement the relevant measures contained in Sections 4 through 9 of the Settlement Agreement for the remainder of the License terms, including adjusting and modifying fish passage facilities as needed to meet relevant performance standards as provided in Section 4.1.6 of the Settlement Agreement.

If the Services determine, on or after the later of (a) the 27th anniversary of issuance of the last of the Licenses for the Swift No. 1, Yale, Merwin, and Swift No. 2 projects, or (b) the 12th year after reintroduction of anadromous fish above Swift No. 1 Dam together with the operation of both the Merwin Upstream Transport Facility and the Swift Downstream Facility, as provided in the License for the Swift No. 1 project, using the approach developed pursuant to Section 3.1.1 of the Settlement Agreement (such determination process is referred to as the "Phase I Status Check"), that any of the Reintroduction Outcome Goals have not been met, the Licensee must perform a limiting factors analysis, in Consultation with the ACC (including at least the Services) and subject to final approval and acceptance of the Services. If the limiting

factors analysis concludes, for all Reintroduction Outcome Goals that are not being met, that all significant limiting factors contributing to the failure to meet such goals are unrelated to Project effects, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must continue carrying out the relevant measures contained in Sections 4 through 9 of the Settlement Agreement, including adjusting and modifying fish passage facilities as provided in Section 4.1.6 of the Settlement Agreement, but shall not be obligated to implement any additional measures. Examples of factors unrelated to project effects include but are not limited to, harvest, upstream of Merwin off-Project habitat conditions (e.g. degradations in habitat due to forest management practices and natural catastrophic events), and ocean conditions. However, if the limiting factors analysis concludes that a Project effect is a significant limiting factor in any Reintroduction Outcome Goal not being met, then, in addition to continuing carrying out of the relevant measures contained in Sections 4 through 9 of the Settlement Agreement, including adjusting and modifying fish passage facilities as provided in Section 4.1.6 of the Settlement Agreement, the Licensee must complete any actions that the Services, informed by discussions with the ACC in a meeting that the Licensee must convene, determine would provide biological benefits adequate to thoroughly offset the impact of the identified Project-related limiting factor(s) for North Fork Lewis populations (e.g., habitat enhancement projects, continuing juvenile supplementation, etc.) provided the Licensee shall not be required to (1) make structural or operational changes with respect to its generating facilities or Project reservoirs to achieve standards, (2) replace any fish passage facility with another fish passage facility, or (3) install additional collection and transport facilities or alternative fish passage facilities.

1.3 Phase II Status Check

If the Services determine, on or after the later of (a) the 37th anniversary of Issuance of the last of the Licenses for the Swift No. 1, Yale, Merwin, and Swift No. 2 projects, or (b) the seventh year after the Phase I Status Check, using the approach developed pursuant to Section 3.1.1 of the Settlement Agreement (such determination process is referred to as the "Phase II Status Check"), that the Reintroduction Outcome Goals have been achieved, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must continue to carry out the relevant measures provided in Sections 4 through 9 of the Settlement Agreement for the remainder of the License terms, including adjusting and modifying fish passage facilities as needed to meet relevant performance standards as provided in Section 4.1.6 of the Settlement Agreement.

If the Services determine, on or after the later of (a) the 37th anniversary of issuance of the last of the Licenses for the Swift No. 1, Yale, Merwin, and Swift No. 2 projects, or (b) the seventh year after the Phase I Status Check, using the approach developed pursuant to Section 3.1.1 of the Settlement Agreement (such determination process is referred to as the "Phase II Status Check"), that any of the Reintroduction Outcome Goals have not been achieved, the Licensee must perform a limiting factors analysis, in Consultation with the ACC (including at least the Services) and subject to the final approval and acceptance of the Services. If the limiting factors analysis concludes, for all Reintroduction Outcome Goals not being met, that all significant limiting factors contributing to the failure to meet such goals are unrelated to Project effects, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must continue carrying out the relevant measures contained in Sections 4 through 9 of the Settlement Agreement including adjusting and modifying fish passage facilities as provided

in Section 4.1.6 of the Settlement Agreement, but shall not be obligated to implement any additional measures. Examples of factors unrelated to project effects include but are not limited to, harvest, upstream of Merwin off-Project habitat conditions (e.g. degradations in habitat due to forest management practices and natural catastrophic events), and ocean conditions. If the limiting factors analysis concludes that a Project effect is a significant limiting factor in any Reintroduction Outcome Goal not being met, then, in addition to continuing carrying out the relevant measures contained in Sections 4 through 9 of the Settlement Agreement, including Facility Adjustments and Facility Modifications as provided in Section 4.1.6 of the Settlement Agreement, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must Consult with the Services to determine what further actions by the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, would be necessary to meet Reintroduction Outcome Goals pursuant to Section 3.5.2.b of the Settlement Agreement. Such actions may include, without limitation, consideration of structural or operational changes with respect to the generating facilities or Project reservoirs or construction of new or replacement passage facilities.

Article 2: Prescription for Fish Passage Facilities Design

To provide for the safe, timely and effective passage past the Project of upstream and downstream migrating salmonids, the Licensee shall develop and implement the Merwin Downstream Facility and Merwin Upstream Transport Facility in accordance with, and subject to the limitations included in, all of the relevant provisions of the Settlement Agreement.

2.1 Studies to Inform Design Decisions

The Licensee, in Consultation with the ACC (including at least the Services) and subject to the final approval of the Services, must develop and carry out studies to inform the design of upstream and downstream fish passage facilities described in the Settlement Agreement with the goal of improving the likelihood that the passage facilities will be successful as initially constructed. Needed information may include the hydraulic characteristics of the Swift No. 1, Yale, and Merwin forebays and tailraces (e.g., a three-dimensional numerical flow-field analysis) and the movement of adult and juvenile salmonids. The Licensee must complete these studies sufficiently in advance of the design decisions required by the Settlement Agreement so that the Licensee, the Services, and the ACC can take the resulting information into account when making final design decisions.

2.2 Design Review

Except as otherwise provided under Section 4.1.9 of the Settlement Agreement, the Licensee must design the Merwin Downstream Facility and the Merwin Upstream Transport Facility, to meet the performance standard targets set out in Section 4.1.4.b of the Settlement Agreement, as applicable. The Licensee must use the best available technology for the type of passage facility being constructed, and design the passage facility to provide flexibility for subsequent expansion or Facility Adjustments, if needed, to meet performance standards. A fish passage facility may include duplication of some components (for example, multiple entrances) and still be considered a single passage facility. The Licensee must coordinate with and provide 30 percent and 60 percent completed preliminary designs for review and comment to the Services and WDFW. The Licensee must notify the ACC when design work has begun, and provide the 30 percent and 60 percent preliminary designs to any other Party to the Settlement

Agreement at the Party's request. The Licensee must provide the Services and WDFW 45 days to provide their comments. The Licensee must submit the 90 percent preliminary designs with the relevant engineering, hydraulic, and biological work to the ACC (including at least the Services) at the times set forth in the Settlement Agreement. The Licensee must provide the ACC (including at least the Services) 45 days to provide its comments on the 90 percent preliminary designs and must finalize the designs in Consultation with the ACC (including at least the Services) and with the approval of the Services. The Licensee must consider and address in writing those written comments provided by the members of the ACC (including at least the Services) when submitting final designs to the Services for approval.

Article 3: Prescription for Permits and Time for Construction

Upon approval of passage facility designs by the Commission, the Licensee must diligently and expeditiously acquire all required Permits. The time by which each passage facility must be placed in operation is set forth in the Settlement Agreement.

Article 4: Prescription for Performance Standards for Fish Passage

The Licensee must provide for the safe, timely, and effective passage of salmonids being transported past the Project as described in the Settlement Agreement. The sole performance standard for kelts and downstream migration of adult sea-run cutthroat must be safe, timely, and effective passage. Specific life stages described below (not including kelts or downstream migrating sea-run cutthroat) have quantitative standards. The Licensee must construct and provide for the operation and maintenance of fish passage facilities that collect all life stages of salmonids that are present at the facility, and function during all flows and during all seasons; except for upstream passage facilities, to the extent it is infeasible due to flood events that require spill that could not be reasonably accommodated by the passage facility.

The Licensee must employ the following definitions in carrying out and monitoring the performance standards:

- Adult Trap Efficiency ("ATE"): The percentage of adult Chinook, coho, steelhead, bull trout, and sea-run cutthroat that are actively migrating to a location above the trap and that are collected by the trap.
- Collection Efficiency ("CE"): The percentage of juvenile anadromous fish of each of the species to be transported, as described in Section 4.1.7 of the Settlement Agreement, that is available for collection and that is actually collected.
- Collection Survival ("CS"): The percentage of juvenile anadromous fish of each of the species to be transported collected that leave Release Ponds alive.
- Injury: Visible trauma (including, but not limited to, hemorrhaging, open wounds without fungus growth, gill damage, bruising greater than 0.5 cm in diameter, etc.), loss of equilibrium, or greater than 20 percent descaling. "Descaling" is defined as the sum of the area on one side of the fish that shows recent scale loss. This does not include areas where scales have regenerated or fungus has grown.
- Overall Downstream Survival ("ODS"): The percentage of juvenile anadromous fish of each of the species to be transported that enter the reservoirs from natal streams and that survive to enter the Lewis River below Merwin Dam by collection, transport, and release via the juvenile fish passage system, passage via turbines, or some combination thereof, calculated as provided in Schedule 4.1.4 of the Settlement Agreement.
- Upstream Passage Survival ("UPS"): Percentage of adult fish of each of the species to be transported that are collected that survive the upstream trapping-and-transport process. For sea-run cutthroat and bull trout, "adult" means fish greater than 13 inches in length.

4.1 Overall Fish Passage Performance Standards for Salmonids

For each species, the Licensee must achieve the following overall performance standards for fish passage: ODS of greater than or equal to 80 percent until such time as the Yale Downstream Facility is built as provided in the License for the Yale project (P-2071), or the funds from the In Lieu Fund, as described in Section 7.6 of the Settlement Agreement, become available to the Services in lieu of constructing the Yale Downstream Facility, after which time ODS must be greater than or equal to 75 percent; UPS of greater than or equal to 99.5 percent; and ATE to be established as described in the Settlement Agreement. ODS, as defined by the Settlement Agreement, must include several components of juvenile passage, including reservoir survival, collection efficiency and collection survival, with the latter two terms having individual, quantitative performance standards, as described in Section 4.1.4 of the Settlement Agreement. Moreover, ODS must also incorporate estimates of juvenile survival rates for fish that elude collection but successfully navigate through Project turbines. For purposes of estimating ODS, until turbine survival studies are performed, the Licensee must assume that the turbine survival is equal to zero percent (0%). If the performance standards for ODS, UPS and ATE are not achieved within a reasonable time, the Licensee must make Facility Adjustments and Modifications, as described in Section 4.1.6 of the Settlement Agreement.

4.2 Passage Facility Design Performance Standards for Salmonids

The Licensee must design and construct downstream fish passage facilities to achieve, for each species, a CE of equal to or greater than 95 percent, a CS of equal to or greater than 99.5 percent for smolts and 98 percent for fry, and adult bull trout survival of equal to or greater than 99.5 percent. Design performance objectives for Injury are less than or equal to 2 percent. The Licensee must design and construct upstream fish passage facilities to achieve the UPS equal to

or greater than 99.5 percent and the ATE to be established as described in the Settlement Agreement.

4.3 Adult Trap Efficiency for Salmonids

As soon as practicable, and following Consultation described by the Settlement Agreement, the Licensee must develop an ATE performance standard for the Merwin Upstream Transport Facility to ensure the safe, timely, and effective passage of adult salmonids. Until such time as the standard has been developed, the Licensee must use NOAA Fisheries Service's fish passage guidelines (Anadromous Salmonid Passage Facility Guidelines and Criteria, NMFS (Jan. 31, 2004)). The Licensee must consider without limitation entry rate, fall back, crowding at the entrance, delay, and abandonment of the trap area. When performance standards for ATE have been developed, the Licensee must submit the standards to the Commission and such standards must be used to judge performance for the facilities when considering Facility Adjustments or Facility Modifications.

4.4 Monitoring and Evaluation of Performance Standards

As described in the Settlement Agreement, once the Merwin Upstream Transport Facility or Merwin Downstream Facility is constructed and placed in operation, and after each Facility Adjustment or Facility Modification, the Licensee must evaluate, in Consultation with the ACC (including at least the Services) and with the approval of the Services, whether performance standards are being met for each of the species designated in the Settlement Agreement, in accordance with the monitoring and evaluation plan described in Section 9 of the Settlement Agreement.

4.5 Adjustments or Modifications to Passage Facilities to Achieve Performance Standards

A "Facility Adjustment" means a physical passage facility upgrade, improvement, or addition that was part of the original design of the passage facility, or an adjustment to the fish passage facility or its operations. A "Facility Modification" means a physical alteration or addition to a physical passage facility that requires a new design. When making Facility Modifications, the Licensee must follow the design process set out in Section 4.1.2 of the Settlement Agreement, in Consultation with the ACC (including at least the Services). Whenever any Facility Adjustment or Facility Modification is completed, the Licensee must test the operation of the relevant facility for a reasonable time to determine the effectiveness of such adjustment or modification. At the direction of the Services and after any required Commission approvals and obtaining all required Permits, the Licensee must make Facility Adjustments and Facility Modifications to the relevant passage facility to achieve the relevant performance standards for each of the species designated in the Settlement Agreement as soon as practicable.

(a) If ODS is not being met, then the Licensee must make Facility Adjustments or Facility Modifications to downstream passage facilities as follows:

(1) If the CE is less than 95 percent and greater than or equal to 75 percent or the CS for smolts is less than 99.5 percent and greater than or equal to 98 percent, or the CS for fry is less than 98 percent and greater than or equal to 96 percent, or Injuries to juvenile Transported Anadromous Species caused by downstream collection and transport are greater than 2 percent but less than 4 percent, the Licensee must make Facility Adjustments directed by the Services to achieve the performance standard or standards that are not being met but is not required to make Facility Modifications; or

(2) If the CE is less than 75 percent, or the CS for smolts is less than 98 percent, or the CS for fry is less than 96 percent, or Injuries to juvenile Transported Anadromous Species caused by downstream collection and transport are greater than or equal to 4 percent, the Licensee must make the Facility Modifications directed by the Services to achieve the performance standard or standards that are not being met; provided that if the Services believe a Facility Adjustment will likely achieve the performance standard or standards that are not being met, then the Licensee must first make Facility Adjustments as directed by the Services.

(b) If the ODS is being met but the CE is less than 95 percent, the CS for smolts is less than 99.5 percent, the CS for fry is less than 98 percent, or Injury to juvenile Transported Anadromous Species caused by downstream collection and transport is greater than 2 percent, the Licensee must make Facility Adjustments directed by the Services to downstream facilities but is not required to make Facility Modifications.

(c) [Reserved.]

(d) For Transported Species, if UPS and/or ATF are not being met, then the Licensee will make Facility Adjustments or Facility Modifications to upstream passage facilities as directed by the Services, consistent with the Settlement Agreement.

(e) Except as required in a proceeding initiated with Section 15.3.2 of the Settlement Agreement, or as provided in Section 3.5.2.b of the Settlement Agreement, the Licensee shall not be required to (1) make structural or operational changes with respect to its generating facilities or Project reservoir to achieve standards, (2) replace any fish passage facility with another passage facility, or (3) install additional collection and transport facilities or alternative fish passage facilities beyond those required by the Settlement Agreement. This Article is not intended to alter specific obligations provided under this License or the Settlement Agreement,

including, without limitation, operational constraints required under Settlement Agreement Sections 4.2, 4.9.1, and 6.2.

Article 5: Prescription for Species to be Transported

For purposes of all fish passage provisions contained herein, the Licensee must only provide for the transport of spring Chinook, winter steelhead, coho, bull trout, and sea-run cutthroat. Notwithstanding the preceding sentence, the Licensee, after Consultation with the ACC (including at least the Services), and if directed by the Services, must also provide for the transport of fall Chinook or summer steelhead that enter the passage facilities.

Article 6: Prescription for Upstream Transport Before Full Adult Fish Passage

Unless and until alternative technologies are implemented, the Licensee must provide for the transport by truck of all Transported Species collected at the Merwin Upstream Transport Facility. Once the Merwin Upstream Transport Facility is completed, and for so long as trucks are used, the Licensee must provide for transport according to the Upstream Transport Plan described in Section 4.1.8.c of the Settlement Agreement.

Article 7: Prescription for Upstream Transport After Full Adult Fish Passage

On or before the 13th anniversary of the Issuance of the last of the Licenses for the Merwin (P-935), Yale (P-2071), Swift No. 1 (P-2111), and Swift No. 2 (P-2213) projects, the Licensee must evaluate alternative adult fish transport technologies (such as fish trams, cable lifts, or other new technologies) at the facility that allow transportation of the fish with the least practicable amount of handling or other stress-inducing actions, considering the need for sorting fish. The Licensee must implement such technologies provided that (1) alternative technologies are determined, by engineers qualified in fish passage and designated respectively by WDFW,

USFWS, NOAA Fisheries Service, and the Licensee to be feasible and effective in transporting fish over dam facilities; (2) the Services determine that such technologies are suitable for meeting the Services' fish passage goals and the biological benefits are expected to be equal to or greater than the benefits of trap-and-transport by truck; and (3) the costs of the selected technology (considering both initial capital cost and ongoing operational and maintenance costs) do not significantly exceed the costs of transporting fish by truck. If there is a disagreement with the engineers' determination under (1) above, the Licensee shall allow for the resolution of disputes in accordance with the ADR Procedures in Section 15.10 of the Settlement Agreement. The Licensee must begin carrying out such technologies after acquisition of all required Permits according to the schedule set forth in the Settlement Agreement. The selection of such technologies and selection of final designs by the Licensee must be made with the approval of the Services after Consultation with the ACC (including at least the Services), pursuant to Section 4.1.2 of the Settlement Agreement. The costs for such alternate technologies must be considered cumulatively for all of the Lewis River projects, so that a cost savings from alternate technology at one Project could offset a cost increase for such technology at another Project, compared to trapping and transporting by truck. If costs are determined to significantly exceed the costs of transporting fish by truck, the Parties to the Settlement Agreement may make reasonable efforts to find more cost-effective facility designs that will achieve the same or greater biological benefit compared to trap-and-transport by truck. If (i) after due comparison of the costs of initial capital and ongoing operations and maintenance through the remaining term of the Licenses of trapping and transporting by truck versus such costs of an alternative technology for upstream passage it appears that such alternate technologies would not be implemented because of increased costs; and (ii) any Party (other than the Licensee or the licensees for the

Swift No.1, Swift No. 2 and Yale projects): (A) identifies alternate sources of funding, (B) provides a guarantee of payment acceptable to the Licensee of the difference in capital and ongoing operations and maintenance costs over the remaining term of the Licenses between trap-and-transport and such alternative technology, and (C) provides such funding without additional conditions unacceptable to the Licensee, express or implied; then the Licensee, shall implement such technologies after acquisition of all required Permits for the Merwin Upstream Transport Facility after any required time for transition between truck and alternative transport facilities but no earlier than upon operation of both the Yale Upstream Facility and Swift Upstream Facility pursuant to the licenses for the Yale project and the Swift No. 1 and Swift No. 2 projects, respectively. If alternative methods are not used at any facility because they do not meet the standards of Section 4.1.8 of the Settlement Agreement, then the Licensee must continue to use trap and transport by truck at such facility.

7.1 Upstream Transport Plan

The Licensee must develop, in Consultation with the ACC (including at least the Services) and with the approval of the Services, subject to Section 15.14 of the Settlement Agreement, a plan that must describe the frequency and procedures to achieve safe, timely, and effective upstream passage (the "Upstream Transport Plan") from the Merwin Upstream Transport Facility. The Licensee must provide for the transport of fish at a minimum frequency of once daily, or more if necessary, to achieve safe, timely, and effective passage. The Licensee must submit the Upstream Transport Plan to the Commission before completion of the Merwin Upstream Transport Facility. The Licensee must modify the Upstream Transport Plan in Consultation with the ACC (including at least the Services) and with the approval of the Services, subject to Section 15.14 of the Settlement Agreement, to identify the distribution of

adults transported to Yale Lake and Swift Reservoir when the Yale Downstream Facility as provided in the License for the Yale project (P-2071) is completed and prior to completion of the Yale Upstream Facility as provided in the License for the Yale project (P-2071) and Swift Upstream Facility as provided in the Licenses for the Swift No. 1 (P-2111) and Swift No. 2 (P-2213) projects. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must modify the Upstream Transport Plan to address transport from the Yale Upstream Facility and the Swift Upstream Facility as provided in the licenses for the Yale, Swift No. 1 and Swift No. 2 projects.

Article 8: Prescription for Downstream Transport

The Licensee must provide for the downstream transport of migrating Transported Species collected in the Merwin Downstream Facility by truck.

If the Licensee has not yet commenced construction of the Merwin Downstream Facility, the Licensee must construct and provide for the operation of a bypass passage system in lieu of trapping and transporting by truck if the Services determine that a salmonid bypass passage system would provide equal or greater biological benefit, and would not have unacceptable impacts on other fish, such as wild fall Chinook, between Merwin Dam and the Release Ponds which will be located further downstream.

If the Licensee has commenced construction of the Merwin Downstream Facility and the Services subsequently determine that a salmonid bypass passage system would provide equal or greater biological benefit and would not have unacceptable impacts on fish between Merwin Dam and the Release Ponds, and the Licensee does not determine that the capital, operation and maintenance costs of such bypass would be significantly greater than the capital, operation and maintenance costs of continued use of trap and transport by truck, then the Licensee must

Consult with the ACC (including at least the Services) regarding a possible change in methods for downstream passage, in accordance with the Settlement Agreement.

8.1 Downstream Transport Plan

The Licensee, together with the licensees for the Yale and Swift No. 1 projects, must modify the Downstream Transport Plan prepared in accordance with the License for the Yale and Swift No. 1 projects, in Consultation with the ACC (including at least the Services), and with the approval of the Services subject to Section 15.14 of the Settlement Agreement, to address transport from the Merwin Downstream Facility. The plan must describe the frequency and procedures to achieve safe, timely, and effective downstream transport. The Licensee, together with the licensees for the Yale and Swift No. 1 projects, must submit the modified Downstream Transport Plan to the Commission before completion of the Merwin Downstream Facility.

Article 9: Prescription for the Merwin Trap

9.1 Merwin Trap Flow Restrictions

To the extent feasible, the Licensee must limit the discharge from the generation facilities at Merwin Dam for safety purposes to a maximum of 5,250 cubic feet per second ("cfs") or other flow level to be determined by the Licensee and the State of Washington Department of Fish and Wildlife (WDFW), measured at the Ariel gage, when personnel are working in the existing fish trap. This practice must continue until such time as upgrades to the Merwin Trap are made and the Licensee determines, in Consultation with WDFW, that such upgrades are effective in providing a greater margin of safety for such personnel. The Licensee must coordinate with WDFW on scheduling such flows and times when fish collection will occur.

9.2 Merwin Trap Upgrades

The Licensee must determine what information is required to improve operating conditions for personnel working in the Merwin Trap by providing a greater margin of safety. The Licensee must gather such information promptly to allow design of operating improvements. By the second anniversary of the Issuance of this License, the Licensee must modify the Merwin Trap as needed to improve the human working environment such that flow restrictions described above are no longer necessary, without introducing additional risk to fish. The Licensee must coordinate with and must provide 30 percent and 60 percent completed preliminary designs for review and comment to the Services and WDFW. The Licensee must provide the 90 percent preliminary designs for the improvements described in this article to the ACC (including at least the Services) within 30 days after the issuance of this License, in accordance with the Settlement Agreement. The Licensee must submit final designs to the Commission upon approval by the Services, subject to Section 15.14 of the Settlement Agreement, but not later than 90 days after Issuance of the Merwin License, or Aug. 31, 2006, whichever is later. Once the improvements are completed or beginning upon the second anniversary of the Issuance of this License, whichever is later, the Licensee must provide for fish to be sorted at the Lewis River Hatchery rather than at the Merwin Trap and must provide up to two additional staffers, if necessary, to clear the Merwin Trap once daily for the benefit of the fish in the facility.

9.3 Interim Merwin Trap Operations

Until construction of the Merwin Upstream Transport Facility, the Licensee must operate the upgraded Merwin Trap solely for the following purposes: to collect hatchery fish returning from the ocean and to transport any bull trout collected to Yale Lake, and fish other than hatchery fish and bull trout will be returned to the river below Merwin Dam. Until the Merwin

Upstream Transport Facility is completed, the Licensee, in coordination with WDFW, must make reasonable efforts to operate the Merwin powerhouse to allow fish trapping operations at the Merwin Trap.

9.4 Merwin Upstream Collection and Transport Facility

By six months after the fourth anniversary of the Issuance of this License, the Licensee must construct and provide for the operation of an adult trap and transport facility for use to collect, sort, and transport hatchery fish and upstream-migrating adult Transported Species. The Licensee must provide for the transport of adult Transported Anadromous Species as provided in the Settlement Agreement.

The Merwin Upstream Transport Facility must be designed by the Licensee, to the extent feasible, to be compatible both with truck transport and with alternate modes of transport that may be selected as described in Section 4.1.8 of the Settlement Agreement. When designing the Merwin Upstream Transport Facility, the Licensee must consider a wide range of design options for the trap and transport facility, including, without limitation, a complete new facility and incorporation of the Merwin Trap (as upgraded) into the new design. The Licensee must consider designs for the Merwin Upstream Transport Facility such that it would meet applicable performance standards regardless of the operational state of the hydroelectric generation facilities at Merwin Dam. The Licensee must provide for the operation of the passage facility year-round for the remaining term of this License. In Consultation with the Services, the Licensee must provide for safe, timely, and effective handling of all species entering the Merwin Upstream Transport Facility. The Licensee must ensure that all species that will not be transported above Merwin Dam or destined for the Hatchery Facilities shall be returned to the Lewis River below Merwin Dam in a manner and frequency that adequately protects them. The

Licensee must provide the 90 percent preliminary designs to the ACC (including at least the Services) by the first anniversary of the Issuance of this License and must follow the procedures set forth in the Settlement Agreement. Subject to Section 15.14 of the Settlement Agreement, the Licensee must submit final designs to the Commission upon approval by the Services, but no later than six months after the first anniversary of the Merwin License.

Article 10: Prescription for Release Ponds

The Licensee, together with the licensees for the Swift No. 1 and Yale projects, must design and construct, in Consultation with the ACC (including at least the Services) and with the final approval of NOAA Fisheries Service, stress Release Ponds below the Merwin Project to be used for downstream migrating fish that are collected at the Swift Downstream Facility, the Yale Downstream Facility and the Merwin Downstream Facility, as described in Section 4.4.3 of the Settlement Agreement.

Article 11: Prescription for Downstream Passage at Merwin Dam

On or before the 17th anniversary of the Issuance of this License, the Licensee must construct and provide for the operation of a passage facility or facilities at Merwin Dam to collect, sort, tag, and transport downstream-migrating Transported Anadromous Species (the "Merwin Downstream Facility"), unless otherwise directed by the Services pursuant to Section 4.1.9 of the Settlement Agreement. Specifically, the Licensee must construct either a modular surface collector or, as directed by the Services, an alternate passage facility or set of facilities provided the detailed engineering estimate of the cost does not exceed the sum of factors described in Section 4.6 of the Settlement Agreement. The Licensee must provide for the downstream transport of migrating transported anadromous juvenile and adult salmonids from Lake Merwin to the Release Ponds below Merwin Dam. Bull trout collected in the Merwin

Downstream Facility shall be returned to Lake Merwin unless otherwise directed by the USFWS; provided that bull trout with a smolt-like appearance, as determined by the Licensee (using methods derived in Consultation with the ACC including at least the USFWS), shall be transported in the same manner as Transported Anadromous Species, as described in Section 4.1.8 of the Settlement Agreement, and shall be transported to a location determined by the USFWS below Merwin Dam.

The Licensee must provide for the tagging of a statistically valid sample of the fish transported as appropriate to accomplish the monitoring and evaluation objectives set forth below, the methodology of such tagging to be determined by the Licensee in Consultation with the ACC (including at least the Services) and approved by the Services. The Licensee must provide for the operation of the passage facility for the remaining term of this License unless the Services determine, after discussion with the ACC, that operation of the Merwin Downstream Facility should not continue. If the Services make such determination after the passage facility has been operating, the Licensee shall notify the Commission of such decision. The Licensee must provide 90 percent preliminary designs to the ACC (including at least the Services) on or before the 13th anniversary of this License. Subject to Section 15.14 of the Settlement Agreement, the Licensee must submit final designs to the Commission upon approval by the Services, but not later than six months after providing preliminary designs to the ACC.

Article 12: Prescription for Monitoring and Evaluation Plan

Pursuant to Section 9.1 of the Settlement Agreement, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must complete a master monitoring and evaluation plan (the "M&E Plan") in Consultation with the ACC (including at least the Services) to carry out a program to monitor and evaluate the effectiveness of aquatic PM&E

Measures contained in the Settlement Agreement and to assess achievement of the Reintroduction Outcome Goals as provided in the Settlement Agreement.

The M&E Plan must address the tasks, and the methods, frequency and duration of those tasks, necessary to accomplish the monitoring and evaluation items described below. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must provide a draft M&E Plan to the ACC (including at least the Services) as described in Section 9.1 of the Settlement Agreement. The Licensee must allow the ACC (including at least the Services) a period of 90 days to provide comments on the draft M&E Plan as part of such Consultation. The Services must have final approval authority over elements of the M&E Plan relating to fish passage or species listed under the ESA, subject to Section 15.14 of the Settlement Agreement. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, shall finalize the M&E Plan and submit it to the Commission for approval within 90 days after the close of the ACC comment period and must implement the M&E Plan upon approval by the Commission. For the purposes of Section 9 of the Settlement Agreement, as provided in the license for the Swift No. 2 project, the licensee for the Swift No. 2 project must prepare elements of the M&E Plan to be performed within the boundaries of Swift No. 2 and must implement such elements. As provided in the licenses for the Merwin, Yale and Swift No. 1 projects, the Licensee, together with the licensees for the Yale and Swift No. 1 projects, must prepare and implement all other elements of the M&E Plan. As provided in the Settlement Agreement, the Licensee, and the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must cooperate to prepare a single M&E Plan and a single annual report to the Commission, but if that is not successful, the Licensee must submit its own plan and annual report as required under Section 9 of the Settlement Agreement.

The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must provide to the ACC (including at least the Services) the results of the monitoring and evaluations under the M&E Plan as part of the Licensee's annual report, which must be prepared in accordance with the Settlement Agreement. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must also include in such annual report a description of the monitoring and evaluation tasks to be completed during the following year. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must Consult with the ACC (including at least the Services) as necessary, but no less often than every five years, to determine if modifications to the M&E Plan are warranted. As a result of such Consultation, the Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must propose changes to the M&E Plan to improve the effectiveness of monitoring and evaluation. The Services must have final approval of changes to the M&E Plan with respect to fish passage or species listed under the ESA, subject to Section 15.14 of the Settlement Agreement. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must carry out any changes to the M&E Plan as soon as they have been approved by the Commission.

The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must amend the M&E Plan in Consultation with the ACC (including at least the Services), to incorporate newly constructed facilities and other aquatic PM&E Measures to be carried out during the term of this License. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must provide a draft revised M&E Plan relating to facilities to be constructed in the future, and other aquatic PM&E Measures to be carried out in the future, to the ACC (including at least the Services) not less than two years before completing

construction of such facilities or implementation of such measures. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must allow the ACC (including at least the Services) a period of 90 days to provide comments on the draft revised M&E Plan as part of such Consultation. The Services must have final approval authority for the revised M&E Plan relating to fish passage or species listed under the ESA, subject to Section 15.14 of the Settlement Agreement. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must finalize the revised M&E Plan and submit it to the Commission for approval within 90 days after the close of the ACC comment period. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must carry out any amendments to the M&E Plan as soon as they have been approved by the Commission.

The following provisions provide guidance regarding elements to be included in the original M&E Plan, and in subsequent amendments to the M&E Plan, relating to specific passage facilities and other aquatic measures. The monitoring and evaluation tasks described in Section 9 of the Settlement Agreement shall be incorporated into and made part of the M&E Plan. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, may revise and adapt the monitoring and evaluation tasks described in Section 9 of the Settlement Agreement, in Consultation with the ACC (including at least the Services) and with the approval of the Services. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, shall allow the ACC a period of 90 days to provide comments on revisions to the draft M&E Plan as part of such Consultation. The Services shall have final approval authority for the revisions to the M&E Plan relating to fish passage or species listed under the ESA, subject to Section 15.14 of the Settlement Agreement. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, shall finalize any revisions to the M&E Plan

and submit them to the Commission for approval within 90 days after the close of the ACC comment period. The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, shall implement the revised M&E Plan upon approval by the Commission.

The Licensee, together with the licensees for the Yale, Swift No. 1 and Swift No. 2 projects, must include in the M&E Plan elements to determine whether the Reintroduction Outcome Goals have been achieved, provided that for such purposes the Licensee shall be required to monitor and evaluate only elements that are under the control of the Licensee (such as the functioning of fish passage facilities) and that are affected by the Project. The Licensee shall not be required, without its express written consent, to conduct monitoring that is the obligation of a third party under applicable law or permits (including, but not limited to, marine harvest).

Article 13: Prescription for Monitoring and Evaluation of Fish Passage Facilities

The Licensee must include in the M&E Plan the following monitoring and evaluation elements with respect to the Project and the Merwin Downstream Facility and Merwin Upstream Transport Facility for Chinook, steelhead, coho, bull trout and sea-run cutthroat.

(a) Juvenile migration timing and the estimated number of juveniles entering Lake Merwin;

(b) Reservoir Survival of juvenile fish migrating through Lake Merwin, determined by monitoring a statistically valid sample of fish entering the reservoir;

(c) Collection Efficiency and Collection Survival for the Merwin Downstream Facility;

(d) Injury to and mortality of juvenile fish collected at the Merwin Downstream Facility, and mortality measured at stress Release Ponds;

(e) Survival of, injury to, and mortality of kelts, bull trout and adult sea-run cutthroat collected at the Merwin Downstream Facility;

(f) Turbine Entrainment ("TE"), as contemplated by the Settlement Agreement, the percentage of juvenile anadromous fish of each of the species designated to be transported that are available for collection and that are not collected by the downstream passage facility, and enter the turbines;

(g) Turbine Survival ("TS"), the percentage of juvenile anadromous fish of each of the species to be transported that are entrained in turbines and that survive through turbines; provided that such monitoring must only be performed if and when fish passing through Project turbines may contribute materially to ODS; provided further that prior to performing Turbine Survival studies, the Licensee must assume Turbine Survival equals zero;

(h) UPS at the Merwin Upstream Transport Facility;

(i) The ATE at the Merwin Upstream Transport Facility;

(j) The number by species of juvenile and adult fish being collected at the Project; and

(k) Hydraulic performance, such as attraction flows in cfs and water velocities in feet per second, to verify that each facility is operating according to its approved design.

Article 14: Prescription for Adult Migration/Spawning Assessment

As contemplated by the Settlement Agreement, the Licensee must identify the spawning timing, distribution, and spawning abundance for Transported Anadromous Species passed upstream by monitoring a statistically valid sample of each stock. The primary purpose is to identify preferred spawning areas to inform revisions to the Hatchery and Supplementation Plan and the Upstream Transport Plan, and to inform the decisions of the ACC in determining how to

expend funds from the Aquatics Fund, but such identification must not otherwise create or increase obligations of the Licensee except as expressly set forth in the Settlement Agreement.

Article 15: Prescription for Adjustment in Monitoring Frequency

As contemplated by the Settlement Agreement, once any fish passage standard has been achieved, future monitoring of that standard would be limited to periodic checks to determine continued compliance with the standard.

Article 16: Prescription for Response to Fish Passage Monitoring Results

To the extent not set forth specifically in Section 9.2 of the Settlement Agreement, as contemplated by the Settlement Agreement, the obligations of the Licensee and the licensees for the Yale, Swift No 1 and Swift No. 2 projects, based on the results of monitoring related to fish passage facilities, are set forth in Section 4 of the Settlement Agreement.

Article 17: Obligation to Consult

Notwithstanding any other provision of these Articles, and with respect to the requirements contained therein, the Licensee's obligation to convene the ACC shall be subject to Section 15.12 of the Settlement Agreement. Where Consultation is required by the Settlement Agreement, the Licensee shall not have an obligation to Consult regarding these Articles with Parties (other than the Services) which have withdrawn from the Settlement Agreement, or with any Party (other than the Services) if the Settlement Agreement is terminated, except as described in Section 15.13 of the Settlement Agreement.

Article 18: Dispute Resolution

In implementing these Articles, the Licensee shall allow for the resolution of disputes, if any, among the Parties to the Settlement Agreement in accordance with the non-binding Alternative Dispute Resolution procedures set forth in the Settlement Agreement.

RESERVATION OF AUTHORITY

NOAA Fisheries Service reserves its right under Section 18 of the FPA to modify these fishway prescriptions and recommended terms and conditions based upon significant new information and conclusions developed in connection with the fulfillment of other statutory consultation and review requirements, including consultation under Section 7 of the ESA, 16 USC §1536, or Section 305(b) of the MSA, 16 USC §1855, regarding essential fish habitat. NOAA Fisheries Service respectfully requests the Commission, upon issuance of any new license in this proceeding, retain by means of a specific reopener provision for fishway prescriptions, in accordance with Section 18 of the FPA, and other appropriate reservations of authority, sufficient discretionary involvement or control with respect to project construction, operation, maintenance, and modification under the new license, or any amendments thereto, so as to ensure full compliance with the requirements of Section 18 of the FPA and any new or modified fishway prescription issued thereunder.

In addition, NOAA Fisheries Service respectfully requests the Commission, upon issuance of any new license in this proceeding, retain by means of a specific ESA reopener 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 NOAA Fisheries 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.

NOAA Fisheries Service's prescriptions for fishways presumes that the Licensee's obligations under the Settlement Agreement filed with FERC on December 1, 2004, are accepted in their entirety and without material modification. In addition to the descriptions contained herein, NOAA Fisheries Service's prescriptions rely on the Settlement Agreement and its attachments, as well as other documents in the record at FERC, as the basis and rationale for the construction, operation, and maintenance of fishways. If the Licensee's obligations under the Settlement Agreement are not accepted in their entirety, and without material modification by FERC, or are materially altered by court order or other review before becoming final, NOAA Fisheries Service reserves the right to revise and refile modified prescriptions and recommended terms and conditions within 90 days of notice indicating any such material modification or alteration.

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