

**123 FERC ¶ 62,258**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

PacifiCorp

Project No. 935-053

## ORDER ISSUING NEW LICENSE

(June 26, 2008)

1. On April 28, 2004, PacifiCorp filed an application for a new license, pursuant to sections 4(e) and 15 of the Federal Power Act (FPA),<sup>1</sup> for the continued operation and maintenance of the 136-megawatt (MW) Merwin Project No. 935, located on the North Fork Lewis River in Cowlitz and Clark Counties, Washington. The project occupies federal lands administered by the U.S. Bureau of Land Management (BLM).<sup>2</sup>
2. PacifiCorp's application for Project No. 935 is one of three applications it filed to relicense its projects on the North Fork Lewis River (referred to as the Lewis River in this order). In addition to the Merwin Project, PacifiCorp filed license applications for two other projects just upstream of the Merwin Project – the Swift No. 1 Project No. 2111 on April 28, 2004 and the Yale Project No. 2071 on May 5, 1999. Also, on April 28, 2004, the Public Utility District of Cowlitz County (Cowlitz PUD) filed a license application for another Lewis River project, the upstream Swift No. 2 Project No. 2213. The existing licenses for these four projects expired between 2001 and 2006.<sup>3</sup> In this order, we refer to the four projects collectively as the Lewis River Projects. While the granting

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<sup>1</sup> 16 U.S.C. §§ 797(e) and 808 (2000), respectively.

<sup>2</sup> The project is required to be licensed under section 23(b)(1) of the FPA, 16 U.S.C. § 817 (2000), because it occupies federal lands.

<sup>3</sup> The expiration date of the Merwin Project license was accelerated from December 11, 2009 to April 30, 2006 to coincide with the expiration dates for the Swift No. 1 and Swift No. 2 licenses. In addition, the Yale Project license expired in 2001, but at the request of PacifiCorp, the processing of that application was held in abeyance so that all four projects could be considered together in a single environmental document.

of a new license for the Merwin Project is the subject of this order, I am concurrently issuing three other orders granting new licenses for the other three Lewis River Projects.<sup>4</sup>

## BACKGROUND

3. The Commission issued a new license for the Merwin Project No. 935 on October 10, 1983.<sup>5</sup> The license expired on April 30, 2006, and since that time PacifiCorp has operated the project under an annual license pending the disposition of its new license application.

4. On December 3, 2004, PacifiCorp and Cowlitz PUD filed a comprehensive Settlement Agreement (Agreement) entered into with 22 stakeholders.<sup>6</sup> The applicants' proposed action is to relicense the Lewis River Projects in accordance with the terms of the Agreement. The Agreement provides for: (1) a phased approach to produce self-sustaining, naturally-reproducing, harvestable anadromous salmonid populations above Merwin dam; (2) reconnecting all life stages of bull trout populations in the Lewis River basin; (3) funding measures to enhance and improve wetlands, riparian, and riverine habitats; (4) restoring marine-derived nutrients to the upper watershed; (5) developing a hatchery and supplementation (release of artificially propagated fish) program that supports the reintroduction of anadromous fish to the upper watershed upstream of Merwin dam, and the continued harvest of resident and native anadromous fish species; (6) implementing instream flows, including ramping rates, that benefit fish and wildlife in the basin; (7) acquiring interests in land and managing lands to benefit a broad range of fish, wildlife, and native plant species; (8) diversifying and managing a comprehensive

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<sup>4</sup> See *PacifiCorp*, 123 FERC ¶¶ 62,257 and 62,260 (2008); and *Public Utility District No. 1 of Cowlitz County*, 123 FERC ¶ 62,259 (2008).

<sup>5</sup> 25 FPC 61,052 (1983).

<sup>6</sup> PacifiCorp; Cowlitz PUD; National Marine Fisheries Service (NMFS); National Park Service; BLM; U.S. Fish and Wildlife Service (FWS); U.S. Forest Service (Forest Service); Confederated Tribes and Bands of the Yakama Nation (Yakama Nation); Washington Department of Fish and Wildlife (Washington Fish and Wildlife); Washington Interagency Committee for Outdoor Recreation; Cowlitz County; Cowlitz-Skamania Fire District No. 7; North Country Emergency Medical Service; City of Woodland; Woodland Chamber of Commerce; Lewis River Community Council; Lewis River Citizens-at-Large; American Rivers; Fish First; Rocky Mountain Elk Foundation, Inc; Trout Unlimited; and the Native Fish Society. On February 10, 2005, PacifiCorp filed additional signature pages to add the following four parties to the Agreement: the Lower Columbia River Fish Recovery Board, Clark County, Skamania County, and Cowlitz Indian Tribe (Cowlitz Tribe).

suite of recreational opportunities; (9) improving flood management during the likely high-flow event periods; (10) protecting known and yet-to-be discovered cultural resources; and (11) addressing project-related transportation, communications, public safety, and law enforcement needs. These measures are described in detail in the Order on Offer of Settlement and Issuing New License for the Swift No. 1 Project (Master Order), one of the four orders issued concurrently for the Lewis River Projects. The Agreement is attached as Appendix A of the Master Order for informational purposes.

5. On December 9, 2004, the Commission issued a notice of the Agreement, and that the four applications and applicant-prepared environmental assessments were accepted for filing. The notice solicited motions to intervene, protests, comments, and final recommendations, terms and conditions, and prescriptions. Timely motions to intervene were filed by the Washington Fish and Wildlife; jointly by American Rivers, Trout Unlimited, and Native Fish Society; U.S. Department of the Interior (Interior); Forest Service; Washington Department of Ecology (Washington Ecology); Cowlitz PUD; Cowlitz Tribe; NMFS; and Yakama Nation. Fish First filed a late motion to intervene, which was granted.<sup>7</sup> None of the intervenors oppose the project.

6. On September 23, 2005, the Commission staff issued a draft environmental impact statement (EIS) for the relicensing of all four Lewis River Projects. American Rivers, Cowlitz Tribe, Cowlitz PUD, NMFS, PacifiCorp, Swiftview Owners Group, Three Rivers Recreational Area, Interior, Forest Service, U.S. Environmental Protection Agency (EPA), Washington Fish and Wildlife, Washington Ecology, and Yakama Nation filed comments on the draft EIS. The final EIS was issued on March 24, 2006. The potential environmental impacts of the measures proposed in the Agreement, along with additional staff-recommended measures, were considered in the EIS. References in this order to the EIS are to the final EIS, unless otherwise noted.

7. On January 5, 2006, PacifiCorp filed draft license articles implementing the terms of the Agreement for each of its projects. Many of these requirements duplicate the mandatory conditions of the section 18 prescriptions and the water quality certifications and the provisions of the National Marine Fisheries Service (NMFS) Biological Opinion. While the proposed draft articles are not included in the license, this order includes requirements consistent with the Agreement and proposed articles, except as noted below.

8. The motions to intervene, comments, and recommendations have been fully considered in determining whether, and under what conditions, to issue this license.

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<sup>7</sup> See unpublished notice dated May 30, 2007.

## PROJECT AREA

9. The Lewis River is a tributary of the Columbia River in southwest Washington, with a drainage area of 1,050 square miles. The river originates in the Cascade Range of the Gifford Pinchot National Forest and flows westward about 93 miles, joining the Columbia River near Woodland, Washington.

10. From upstream to downstream, the Lewis River hydropower projects include Swift No. 1 [river mile (RM) 47.9], Swift No. 2 (RM 44), Yale (RM 34.2), and Merwin (RM 19.5), and affect almost 40 miles of river.

11. The Lewis River Basin downstream of Merwin dam supports wild fall Chinook salmon and hatchery stocks of spring Chinook, early and late coho salmon, and winter and summer steelhead. The project area is described in more detail in the Master Order.

## PROJECT DESCRIPTION

12. The Merwin Project, the oldest and most downstream of the Lewis River Projects, includes a 313-foot-high concrete arch dam extending 1,252 feet across the Lewis River. Deepwater inlets lead to three short penstocks with a total capacity of 11,470 cubic feet per second (cfs), which enter the powerhouse immediately downstream of the dam. The plant has a nameplate capacity of 136 MW. Power from the project is carried by three 115-kilovolt (kV) primary transmission lines 1,000 feet to the Merwin substation. Flows in excess of powerhouse capacity are controlled by five Taintor gates situated above the 206-foot-long spillway. The project impounds the 14.5-mile-long Lake Merwin, with a surface area of about 4,000 acres at full pool. Merwin's 263,700 acre-feet of useable storage is managed for the purposes of power generation, flood management, recreation, and downstream fish habitat enhancement.

13. The Merwin Project boundary includes all shoreline recreational sites (Merwin Park, Speelyai Bay Park, Cresap Bay Campground); a narrow shoreline buffer around the reservoir; the Lower Speelyai Creek diversion and Speelyai Fish Hatchery; all project development facilities (dam, powerhouse, switchyard); the Merwin Fish Hatchery; the Hydro North Control Center; and lands downstream of the dam along the Lewis River that include the Merwin fishing access on the north shore of the river and the PacifiCorp fishing easement on the south shore.

14. As the downstream facility, Merwin operates as a re-regulation facility for the other three Lewis River Projects, providing minimum instream flows and ramping rates for the lower river. Minimum flow releases under the current license range from 1,000 to 5,400 cfs, depending on season, while downramping rates are limited to 2 inches per hour. The reservoir is maintained at a fairly constant level throughout the year, fluctuating between elevations 235 feet above mean sea level (msl) (normal minimum

summer pool) and 239.6 feet msl (full pool). Due to its large size, Lake Merwin experiences only minimal hourly fluctuations in response to peaking operations at the upstream Yale Project. The pattern of releases from the Merwin Project varies seasonally, with median monthly values ranging from 1,300 cfs in August to 8,000 cfs in December. During periods of high runoff, the Merwin facility spills water in volumes ranging from a few thousand cfs in moderate high runoff events to as much as 80,000 cfs or more during severe floods. The Merwin Project, together with the Swift No. 1 Project and the Yale Project, is also operated to meet Commission and Federal Emergency Management Agency requirements for flood management.

## WATER QUALITY CERTIFICATION

15. Under section 401(a)(1) of the Clean Water Act (CWA),<sup>8</sup> the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has issued water quality certification for the project or has waived certification by failing to act within a reasonable period of time, not to exceed 1 year. Section 401(d) of the CWA provides that state certification shall become a condition of any federal license that authorizes construction or operation of the project.<sup>9</sup>

16. On February 3, 2005, PacifiCorp applied to Washington Ecology for water quality certification. PacifiCorp subsequently withdrew and refiled its application on December 2, 2005. Pursuant to Section 4.1(9) of the water quality certification,<sup>10</sup> Washington Ecology issued amendments on December 21, 2007 and January 17, 2008.<sup>11</sup>

17. The conditions of the certification include general requirements: (1) compliance with all state water quality standards approved by the EPA; (2) compliance with sediment

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<sup>8</sup> 33 U.S.C. § 1341(a)(1) (2000).

<sup>9</sup> 33 U.S.C. § 1341(d) (2000).

<sup>10</sup> Ecology reserves the right to amend this certification if it determines that the provisions are no longer adequate to provide reasonable assurance of compliance with applicable water quality standards or other appropriate requirements of state law.

<sup>11</sup> Washington Ecology replaced three of the conditions of the certification dealing with oil spill prevention and control (conditions 4.6.3.e, 4.6.4.e, and 4.6.5.a). The revisions require that the oil-water separator be sized to accommodate inflows up to the total volume of the largest transformer plus 15 percent and that the transformer containment area will contain spills from the volume of the largest transformer plus 15 percent. With regard to the sumps, the revision requires that the oil sensors be calibrated and maintained to detect oil at 15 parts per million or less.

quality standards; (3) prohibition of discharge of any solid or liquid waste to the waters of Washington; and (4) reservation of Washington Ecology's authority.

18. The certification also includes specific conditions: (1) release specified instream flows and provide habitat; (2) maintain specified total dissolved gas levels; (3) maintain specified temperature and dissolved oxygen levels; (4) implement measures to protect water quality during construction projects, miscellaneous discharges, and habitat modifications; (5) implement oil spill prevention and control measures; (6) implement measures to protect water quality during pesticide applications; and (7) implement monitoring and reporting measures.

19. The water quality certification conditions are attached as Appendix A to this order. Ordering Paragraph (D) incorporates the certification conditions of Appendix A as conditions of the license.

### **SECTION 18 FISHWAY PRESCRIPTION**

20. Section 18 of the FPA<sup>12</sup> provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate.

21. Both Commerce and Interior filed modified fishway prescriptions (Commerce filed on February 17, 2006, and Interior filed on February 22, 2006). Both prescriptions involve passage of anadromous salmon and steelhead species, while FWS's prescriptions also involve bull trout. Both agencies state that these prescriptions are consistent with the Agreement.

22. The fishway prescriptions include structures for upstream and downstream passage past the project, project operations, performance standards, outcome goals, and other measures to ensure effective passage. Within 6 months after the fourth anniversary of the new Merwin license, PacifiCorp will construct and begin operating an upgraded upstream fish passage facility at Merwin dam that would collect, sort, and transport upstream-migrating adult Chinook, coho, steelhead, sea-run cutthroat trout, and bull trout. Initially, adult Chinook, coho, and steelhead collected at Merwin dam will be transported and released above Swift dam. Any bull trout collected below Merwin dam will be transported to Yale Lake unless otherwise directed by FWS. On or before the 17<sup>th</sup> anniversary of the new licenses (unless otherwise directed by FWS and NMFS), PacifiCorp will construct and begin operating a downstream passage facility at Merwin dam. The FWS' prescriptions also include measures for the collection and hauling of bull trout.

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<sup>12</sup> 16 U.S.C. § 811 (2000).

23. The Commerce section 18 prescription is attached as Appendix B to this order and the Interior prescription is attached as Appendix C. Ordering Paragraphs (E) and (F) incorporate the Commerce and Interior prescriptions, respectively, as conditions of the license.

24. Both agencies also reserve their rights under Section 18 of the FPA to modify the fishway prescriptions based upon significant new information and conclusions developed in connection with the fulfillment of other statutory consultation and review requirements. Consistent with Commission policy, Article 410 of this license reserves the Commission's authority to require fishways that may be prescribed by Interior or Commerce for the Merwin Project.

### **THREATENED AND ENDANGERED SPECIES**

25. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973,<sup>13</sup> requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of their designated critical habitat. The draft EIS evaluated effects of the project on listed species and served as our biological assessment (BA). Staff's conclusions with regards to threatened and endangered species and the measures included in the biological opinions (BOs) issued by NMFS and FWS are outlined in the Master Order.

26. On September 30, 2005, Staff requested formal consultation with NMFS on the listed salmon and steelhead species. NMFS issued a BO on August 27, 2007, which contains four incidental take terms and conditions that require the licensee to: (1) comply with the provisions of the Agreement that relate to anadromous fish (specifically, sections 3, 4, 5, 7, 8, and 9 of the Agreement); (2) for all construction activities, implement measures to control sediment and minimize other potential effects on salmonids; (3) implement monitoring and evaluation measures contained in the Agreement; and (4) report any dead or injured steelhead that are discovered. These terms and conditions are contained in Appendix D of this order, and incorporated into this license by Ordering Paragraph (G), with the exception of section 6.1.5.a of the Agreement (flows through the upper release point during spill flows) prohibited by the mandatory water quality certification.<sup>14</sup> The absence of this measure will not minimize the protection of listed species.

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<sup>13</sup> 16 U.S.C. § 1536(a) (2000).

<sup>14</sup> The BO issued for the four Lewis River Projects requires compliance with section 6 of the Agreement that, among other things, allows the licensees for the Swift No. 1 and Swift No. 2 Projects, at their discretion, to stop releases through the Upper

27. Staff requested consultation with FWS on September 30, 2005. FWS issued a BO for bull trout, bald eagle, and northern spotted owl on September 15, 2006. The BO contains five incidental take terms and conditions related to bull trout that require the licensee to: (1) minimize coho redd superimposition on bull trout; (2) conduct annual bull trout surveys; (3) implement procedures for transporting fish to minimize predation; (4) follow instream construction timing; and (5) implement measures for monitoring and handling bull trout. These terms and conditions are provided in Appendix E of this order and incorporated by Ordering Paragraph (H).

## ESSENTIAL FISH HABITAT

28. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act<sup>15</sup> requires federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) identified under the Act. Under section 305(b)(4)(A)<sup>16</sup> of the Magnuson-Stevens Act, NMFS is required to provide EFH Conservation Recommendations for actions that would adversely affect EFH. Under section 305(b)(4)(B) of the Act,<sup>17</sup> an agency must, within 30 days after receiving recommended conservation measures from NMFS or a Regional Fishery Management Council, describe the measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the agency's activity on the EFH.<sup>18</sup>

29. The Pacific Fisheries Management Council has designated EFH for the following federally managed Pacific salmon: Chinook, coho, and Puget Sound pink salmon. Freshwater EFH for these Pacific salmon includes all streams, lakes, ponds, wetlands,

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Release Point in the vicinity of the Swift No. 1 powerhouse during the time that spills displace scheduled releases from the Upper Release Point into the Lewis River bypassed reach (section 6.1.5.a of the Agreement). Section 4.2(5) of the water quality certifications issued for the Swift No. 1 and Swift No. 2 Projects do not allow such modification.

<sup>15</sup> 16 U.S.C. § 1855(b)(2) (2000).

<sup>16</sup> 16 U.S.C. § 1855(b)(4)(A) (2000).

<sup>17</sup> 16 U.S.C. § 1855(b)(4)(B) (2000).

<sup>18</sup> The measures recommended by the Secretary of Commerce are advisory, not prescriptive. However, if the federal agency does not agree with the recommendations of the Secretary of Commerce, the agency must explain its reasons for not following the recommendations.



and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable artificial (man-made) barriers, and longstanding naturally impassable barriers. The Lewis River Basin comprises EFH for Chinook and coho salmon.

30. Staff concluded in the EIS that relicensing the projects as proposed by the applicants would continue to have an adverse effect on Chinook and coho EFH, but that elements of the proposed action, such as improvements to upstream and downstream passage, would reduce these effects over current conditions.

31. NMFS included an analysis of effects on EFH in its BO for the four projects provided in response to the Commission's September 30, 2005 request to initiate formal consultation under the ESA. In the BO, dated August 27, 2007, NMFS concluded that the proposed action would adversely affect designated EFH for Pacific coast salmon. NMFS adopted the terms and conditions of the BO's incidental take statement (discussed above) as conservation measures to minimize the effects on EFH. NMFS' conservation measures are included in this license in accordance with the terms and conditions of the NMFS BO (Appendix D of this order).

### **PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT**

32. In 1980, Congress enacted the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act).<sup>19</sup> This act created the Northwest Power Planning Council (now known as the Northwest Power and Conservation Council) and directed it to develop a Columbia River Basin Fish and Wildlife Program (Program). The Program is to protect, mitigate, and enhance fish and wildlife resources affected by the development and operation of hydroelectric projects on the Columbia River and its tributaries, while assuring the Pacific Northwest an adequate, efficient, economical and reliable power supply.<sup>20</sup> Section 4(h)(11)(A) of the Northwest Power Act<sup>21</sup> provides that federal agencies operating or regulating hydroelectric projects within the Columbia River Basin shall exercise their responsibilities to provide equitable treatment for fish and wildlife resources with other purposes for which the river system is utilized and shall take the Council's Program into account "at each relevant stage of decision-making processes to the fullest extent practicable."

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<sup>19</sup> 16 U.S.C. §§ 839(b) (2000) *et seq.*

<sup>20</sup> 16 U.S.C. § 839b(h)(5) (2000).

<sup>21</sup> 16 U.S.C. § 839(h)(11)(A) (2000).

33. To mitigate harm to fish and wildlife resources, the Council has adopted specific provisions to be considered in the licensing or relicensing of non-federal hydropower projects (Appendix B of the Program). The provisions of the Agreement required by this license, including anadromous fish reintroduction and passage measures (sections 3 and 4), flow releases (section 6), aquatic habitat enhancement (section 7), hatchery and supplementation program (section 8), and wildlife land acquisition and management (section 10) are consistent with applicable provisions of the Program, as discussed in more detail in the EIS.<sup>22</sup> As part of the Program, the Council has designated over 40,000 miles of river in the Pacific Northwest region as not being suitable for hydroelectric development ("protected area"). The Merwin Project is not located within a protected area designated under Appendix B of the Program. Further, Article 411 reserves to the Commission the authority to require future alterations in project structures and operations to take into account, to the fullest extent practicable, the applicable provisions of the program.

### **NATIONAL HISTORIC PRESERVATION ACT**

34. Under section 106 of the National Historic Preservation Act (NHPA),<sup>23</sup> and its implementing regulations,<sup>24</sup> federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

35. To satisfy these responsibilities, the Commission executed a Programmatic Agreement (PA) with the Washington State Historic Preservation Officer and invited PacifiCorp, Forest Service, Cowlitz Tribe, and Yakama Nation to concur with the stipulations of the PA.<sup>25</sup> The PA requires PacifiCorp to implement the final Historic Properties Management Plan (HPMP), dated March 2004. Execution of the PA demonstrates the Commission's compliance with section 106 of the NHPA.

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<sup>22</sup> See EIS at 5-23 to 5-31.

<sup>23</sup> 16 U.S.C. § 470 (2000) *et seq.*

<sup>24</sup> 36 C.F.R. Part 800 (2007).

<sup>25</sup> No historic properties associated with the Swift No. 2 Project were identified. As a result, this PA did not include the Swift No 2 Project.

36. PacifiCorp will implement the HPMP, as described in Section 13.1.1 of the Agreement. The HPMP guides the licensee's treatment of known and yet to be discovered cultural and historic resources through the license term and identifies the consultation procedures the licensee shall undertake with the Cowlitz Tribe, Yakama Nation, and oversight agencies. Additionally, the licensee will implement the following specific measures for protection of cultural resources relevant to the Merwin Project:

(1) curate archeological artifacts recovered from the project area and associated documentation at the visitor information facility described in section 13.2.4 of the Agreement or at another project facility created by the licensee in one of its existing buildings that meets the applicable federal curation guidelines;

(2) provide access by the Cowlitz Tribe and Yakama Nation to project lands for traditional cultural practices except where unsafe conditions exist;

(3) undertake a program to monitor and protect cultural resources in the draw-down zones;

(4) designate a cultural resource coordinator for the licensee's Lewis River Projects; and

(5) undertake a program for annual training and education of the licensee's employees whose work may affect cultural resources in the project areas.

37. The existing HPMP approved by the PA includes the requirements stated above. Article 412 requires PacifiCorp to implement the PA and associated HPMP consistent with section 13.1.1 of the Agreement.

## **RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES**

### **A. Recommendations Pursuant to Section 10(j) of the FPA**

38. Section 10(j)(1) of the FPA,<sup>26</sup> requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,<sup>27</sup> to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

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<sup>26</sup> 16 U.S.C. § 803(j)(1) (2000).

<sup>27</sup> 16 U.S.C. §§ 661 (2000) *et seq.*

39. In response to the Commission's notice that the projects were ready for environmental analysis (dated December 9, 2004), NMFS, Interior, and Washington Fish and Wildlife filed letters of comment that included section 10(j) recommendations.<sup>28</sup> These agencies are also parties to the Agreement.<sup>29</sup> In their letters containing their 10(j) recommendations, these agencies recommended that the Commission approve the Agreement and all the provisions thereof. Four recommendations were determined to be outside the scope of section 10(j) and are discussed in the next section. The remaining 10(j) recommendations that were provisions of the Agreement are consistent with the section 4(e) conditions, fishway prescriptions, water quality certification conditions, and BO terms and conditions and are therefore incorporated into the license. As a result, this license includes conditions consistent with the recommendations that are within the scope of section 10(j).

### **B. Recommendations Pursuant to Section 10(a)(1) of the FPA**

40. The agencies made recommendations that are not specific measures to protect, mitigate damages to, or enhance fish and wildlife. Consequently, I do not consider these recommendations under section 10(j) of the FPA. Instead, I consider these recommendations under the broad public-interest standard of FPA section 10(a)(1).<sup>30</sup>

41. Staff did not recommend in the draft EIS four measures relevant to the Merwin Project that are outside the scope of section 10(j). These include: (1) adoption of a contingency monetary fund (In-lieu Fund) to implement mitigation measures for anadromous salmonids if it is determined that reintroduction of salmonids is not required; (2) certain measures to be funded by the Aquatics Fund; (3) funding for three additional marine and land based law enforcement officers; and (4) improvements to five river access sites outside of the Merwin Project boundary along the lower Lewis River.

42. The In-lieu Fund is not within the scope of section 10(j), in that it is not a specific measure for fishery resources but rather a contingency fund. Under Section 7.6 of the

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<sup>28</sup> These letters were dated February 3, 4, and 7, 2005, respectively.

<sup>29</sup> The Agreement was filed with the Commission on December 3, 2004.

<sup>30</sup> 16 U.S.C. § 803(a)(1) (2000). Section 10(a)(1) requires that any project for which the Commission issues a license shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

Agreement, PacifiCorp would fund mitigation measures for anadromous salmonids in the event that an upstream fish passage is not implemented (\$30 million for the Yale, Merwin, and Swift No. 1 Projects). For the Merwin Project, PacifiCorp would provide \$10 million in lieu of the Merwin downstream facility. The process for making the decision to implement the fund is outlined in section 4.1.9 of the Agreement. As indicated in the Master Order, because this is a fund for events that may or may not occur, staff was unable to determine what measures would be supported by this fund, or whether they would be directly linked to effects of the projects or their operations.<sup>31</sup> Furthermore, it was unclear to staff what circumstances would be the basis for the fund's implementation. Instead, staff recommended that the licensees prepare a report that presents the rationale for how the decision to forego fish passage was made and a plan that describes the procedures for determining which specific measures in lieu of fish passage would be implemented.

43. The intent of the In-lieu Fund--implementation of measures necessary to protect and enhance Lewis River salmonid population in lieu of fish passage—is consistent with the intent of the staff recommendation. Although I do not endorse establishing a \$10 million fund for the Merwin Project because of the unknown nature of any needed measures, it is a condition required by NMFS's BO, and therefore I include it in the Merwin Project license [Ordering Paragraph (G) and Appendix D of this order]. In addition, I require that PacifiCorp file, for Commission approval, all plans and measures in lieu of fish passage that are proposed, before they are implemented, and that all proposed measures demonstrate a clear nexus to the objectives set forth in section 7.6.3 of the Agreement (Article 401).

44. The Aquatics Fund is not within the scope of section 10(j), in that the fishery measures lack specificity. The fund is proposed to benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species; to support the reintroduction of anadromous fish throughout the basin; and to enhance fish habitat in the Lewis River Basin, with priority given to the North Fork Lewis River. While benefits of the fund will most likely extend to the enhancement, protection, and restoration of aquatic habitat and other resources affected by the project, it is not certain that funds would be used solely for measures that provide a demonstrated benefit to resources affected by project structures and operations.<sup>32</sup> To ensure that the fund achieves the objectives listed under section 7.5 of the Agreement and has a project nexus, however, I will require that the strategic plan that will guide resource project development and the annual report describing proposed resource projects be filed with the Commission for approval (Article 401) after the plan is approved by the Aquatic Coordination Committee

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<sup>31</sup> See EIS, section 3.3.3.2.

<sup>32</sup> *Id.*, section 5.1.5.

(ACC).<sup>33</sup> I include the Aquatics Fund because it would provide substantial benefits to resources affected by the project [Ordering Paragraph (G) and Appendix D].

45. Funding law enforcement is not within the scope of section 10(j) in that it is not a recommendation related to fish and wildlife resources. I do not include funding law enforcement because law enforcement is the responsibility of the county and state agencies and would not necessarily be directed at project-related recreational use.

46. Improvements to five river access sites outside of the Merwin Project boundary are not within the scope of section 10(j), in that they are not specific measures for fish and wildlife resources. As outlined in section 11.2.4.1 through 11.2.4.3 of the Agreement, PacifiCorp proposes to continue to maintain and improve five lower river access sites downstream of Merwin dam. The improvements would include replacing or providing vault toilets at all of the sites and providing two to three picnic tables at each of the lower sites. Although the proposed measures would improve public access to the Lewis River downstream of the Merwin Project, there is no physical nexus between most of these sites and the project.<sup>34</sup> The proposed measures would be located at sites approximately 5 miles downstream of the project, and as a result, would not be associated with displaced recreation use. Therefore, I do not include these recreational facilities as part of the Merwin Project. Nevertheless, PacifiCorp is free to continue to operate these facilities outside of the Merwin Project license.

## **OTHER ISSUES**

### **A. Fisheries and Aquatic Resources**

47. Many of the fisheries and aquatic resources plans required by the mandatory NMFS and FWS fishway prescriptions or conditions of the NMFS BO do not require Commission approval. Article 401(a) requires that PacifiCorp file the following plans or designs for Commission approval before implementation: upstream transport plan, downstream transport plan, downstream passage design at Merwin dam, design of stress release ponds, bull trout collection and transport program, habitat preparation plan, Aquatics Fund strategic plan, In-lieu Fund strategic plan, hatchery and supplementation plan and operating plan, and monitoring and evaluation plan.

48. Several fishway prescriptions and BO conditions contemplate changes to project operations or facilities over the course of the new license as a result of studies or changed

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<sup>33</sup> The ACC and Terrestrial Coordination Council (TCC) are made up of representatives from the Agreement signatories, as outlined above.

<sup>34</sup> See EIS at 3-157.

circumstances. Because the comprehensive development standard of FPA section 10(a)(1) continues to govern regulation of a project throughout the term of its license,<sup>35</sup> it is the Commission's responsibility to give prior approval, through appropriate license amendments, for all material changes to the project and its maintenance and operation.<sup>36</sup> Article 401(b) identifies these conditions and requires Commission approval of these changes before they may be implemented.

49. Section 5.5 of the Agreement provides that PacifiCorp perform a limiting factors analysis for bull trout occurring in Lake Merwin tributary streams to determine potential for long-term, sustainable habitat. Such an analysis would be valuable by identifying those habitat elements critical to bull trout survival that require restorative efforts.<sup>37</sup> This analysis is required by article 402.

50. Section 6.2 of the Agreement requires PacifiCorp to provide minimum flows downstream of Merwin dam and ramping rates that would result in improved aquatic habitat and reduce the potential for stranding below Merwin dam for the listed bull trout, anadromous salmonids, and other aquatic organisms.<sup>38</sup> The Agreement allows the licensee to modify flow releases during low-flow periods. Any changes to the flow regime would require Commission approval.

51. PacifiCorp also proposes to continue the following aquatic resources measures: (1) maintain downramping rates of 2 inches/hour (with exceptions provided by the Agreement) and maintain minimum flow releases below Merwin dam; (2) follow NMFS and FWS facility and handling guidelines for anadromous fish and bull trout; (3) operate the upstream adult salmon and steelhead collection trap at Merwin dam; (4) in conjunction with the other Lewis River Projects, maintain current salmon and steelhead smolt production levels (3,125,000) to achieve a goal of 86,000 ocean recruits, or as determined by the ACC; (5) in conjunction with the other Lewis River Projects, maintain current production levels for kokanee and rainbow trout; (6) support the Washington Fish and Wildlife's annual evaluation of fall Chinook in the lower Lewis River; and (7) in

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<sup>35</sup> See, e.g., *S.D. Warren Co.*, 68 FERC ¶ 61,213 at p. 62,022 (1994).

<sup>36</sup> The Commission's regulations, as well as the terms of the license and basic due process principles, govern what types of alterations require what sorts of submittals or public notice. A license article can not provide for automatic amendment of the license based on future occurrences. Rather, the licensee is free to file with the Commission for an amendment of its license, if future conditions warrant.

<sup>37</sup> See EIS, section 3.3.3.2.

<sup>38</sup> *Id.*, section 3.3.3.2.

conjunction with the other Lewis River Projects, annually evaluate bull trout and kokanee populations. These measures would ensure the maintenance and restoration of anadromous fish species and the federally listed bull trout and are required by Article 402, the water quality certification (minimum flows and ramping rates), or conditions of the NMFS BO (production goals and Merwin trap).

## **B. Wildlife Resources**

52. PacifiCorp currently manages the 5,600-acre Merwin Wildlife Habitat Management Area under a Wildlife Habitat Management Plan (Habitat Plan). PacifiCorp proposes to develop, fund, and implement Habitat Plans on existing PacifiCorp-owned lands, as provided for in section 10.8 of the Agreement. This would replace the current Habitat Plan for the Merwin Wildlife Habitat Management Area. The lands covered by the new Habitat Plans for the Merwin Project shall include: (1) 5,600 acres currently managed as part of the Merwin Wildlife Habitat Management Area; and (2) all other PacifiCorp-owned lands adjacent to the project, except as provided in Exhibit A of the Agreement. The general wildlife objectives are outlined in schedule 10.8, *Wildlife Objectives* of the Agreement.

53. Implementation of the new Habitat Plan would continue to offset habitat impacts and associated wildlife losses resulting from continued operation of the project by enhancing the quality of wildlife habitat within and adjacent to the project boundary, benefiting many wildlife species. Article 403 requires PacifiCorp to file a Habitat Plan for Commission approval within 6 months from the date of issuance of this license and any future modifications to the Habitat Plan. The licensee shall continue to implement the current Merwin Project Wildlife Habitat Management Plan in the Merwin Wildlife Habitat Management Area until approval of the new Habitat Plan required by this license. Article 403 also requires the licensee to file annual plans outlining the proposed wildlife measures and costs and showing the benefits to resources affected by project structures or operations. The annual plans shall explain the consistency with wildlife objectives outlined in the Agreement. Article 203 requires that all PacifiCorp-owned lands adjacent to the project boundary managed under the Habitat Plan be included in the project boundary.

54. With respect to wildlife resources, PacifiCorp proposes to continue the following measures: (1) buffer sensitive aquatic and terrestrial habitat from ground-disturbing activities (timber harvest, construction, etc.); (2) maintain road closures through sensitive habitat areas by installing and maintaining gates, and identify additional areas for access control on PacifiCorp lands; (3) manage PacifiCorp lands to benefit wildlife habitat; and (4) continue to manage project roads to maintain existing aquatic connectivity and control runoff and erosion. Article 404 of the license requires these measures.



### C. Recreation Resources

55. The Recreation Resource Management Plan (Recreation Plan) filed with the Agreement on November 30, 2004, includes all recreation measures proposed in the Agreement, along with additional recreational measures and timelines. The recreation measures outlined in section 11.2.3.1 of the Agreement provide for PacifiCorp to make a number of improvements, including promoting existing and new non-motorized, multi-use trails; upgrading river access at Speelyai Bay Park and providing an improved river access site at the Yale Bridge; upgrading and developing recreation facilities at Merwin Park and Speelyai Bay Park; and maintaining all existing and new recreation facilities, including shoreline camping and day use sites in a manner consistent with the Recreation Dispersed Shoreline Use Program (Shoreline Program) pursuant to maintenance standards and frequencies set forth in the Recreation Plan on all lands within the Merwin Project boundary. All existing campsites and day-use sites would be assessed to determine suitability for continued day-use recreation within the first year of license issuance and those sites that would not allow camping would be identified by the fourth year of issuance. In addition, PacifiCorp will collaborate with the licensee for the Swift No. 2 Project to produce a single Interpretation and Education Program, which will include a public information program to protect bull trout, as outlined in section 5.7 of the Agreement, for all four Lewis River Projects. These measures would provide substantial improvements to existing conditions and would improve access to recreational opportunities in the project area.<sup>39</sup> Therefore, Article 405 requires PacifiCorp to implement the Recreation Plan with the exception of the measures proposed for the recreation facilities downstream of the project as discussed below. In addition, article 405 requires the licensee to file a report documenting the implementation of the public information program to protect bull trout as outlined in section 5.7 of the Agreement.

56. PacifiCorp also proposes to evaluate the feasibility of a trail easement to connect a proposed Clark County regional park to the south side of Lake Merwin as outlined in section 11.2.3.4 of the Agreement. PacifiCorp would provide the easement and Clark County would develop and operate the trail. PacifiCorp estimated that the demand for trail-related activities will increase significantly over the next 30 years. By providing a trail easement between the County's regional park and Lake Merwin, this would allow pedestrian access to the shoreline and provide a new trail-related recreational opportunity within the project. PacifiCorp is free to work with Clark County to construct, operate, and maintain the trail, as outlined in the Agreement. Nevertheless, PacifiCorp would be ultimately responsible for the trail. Therefore PacifiCorp shall file a trail access plan under Article 406 and shall include the access trail within the Merwin Project boundary.

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<sup>39</sup> *Id.* at 3-160.

57. As outlined in 11.2.3.5 of the Agreement, PacifiCorp, as part of the Recreation Plan, would evaluate accessibility for the disabled at existing Lake Merwin recreation facilities and subsequently would make accessibility improvements to those facilities based on this evaluation. The Agreement, however, includes no mechanism for Commission review and approval of the actual upgrades or modification of project recreation facilities. Therefore, Article 407 of this order requires PacifiCorp, once the evaluation is complete, to file a report with the Commission that summarizes the results of the evaluation, and describes its plan for modifying existing project recreation facilities, including a timeline for construction. Improving access for the disabled at the project would be consistent with the Commission's policy on recreation facilities at licensed projects<sup>40</sup> under which licensees are expected to consider the needs of the disabled in the design and construction of such facilities. It would also help address growing recreational demand at this project.<sup>41</sup>

58. As outlined in section 11.2.3.10 and 11.2.3.11 of the Agreement, PacifiCorp proposes to make several improvements to Speelyai Bay Park, including upgrading the existing restroom building to meet Americans with Disabilities Act standards, improving parking in the quarry area by providing gravel and marked parking spaces. This license requires these measures through Article 405. In addition, PacifiCorp proposes to evaluate the feasibility of providing additional parking with trail access to the boat launch area. This measure is required under Article 408.

59. As outlined in section 11.2.4.1 through 11.2.4.3 of the Agreement, PacifiCorp proposes to continue to construct a new river access site downstream of Merwin dam and within the project boundary (Merwin Hatchery River Access Site) to meet recreation demands at the project. Although we exclude five recreational access sites located downstream of Merwin dam because of lack of nexus with the project (see above), this access site is within the project boundary and has a direct connection to the project. The new improvements would include providing a vault toilet and two picnic tables at the lower site. Article 409 requires PacifiCorp to implement these improvements at the Merwin Hatchery River Access Site.

#### **D. Flood Management**

60. The Lewis River Projects have provided important flood management for the local communities below Merwin dam. PacifiCorp is subject to an agreement with the Federal Emergency Management Agency (FEMA) dated August 18, 1983 under which PacifiCorp is obligated to follow its existing Standard Operating Procedure manual in

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<sup>40</sup> See 18 CFR section 2.7 (2007).

<sup>41</sup> See EIS at 3-157.

operating its projects. Article 302 requires that the licensee shall provide not less than 70,000 acre-feet of storage space in the Merwin, Yale, and Swift No. 1 hydroelectric developments for flood control on the Lewis River, beginning withdrawal by September 20 and reaching not less than 70,000 acre-feet by November 1 of each year, and retaining such space through April 1 and permitting gradual filling by April 30 of the following year, according to an approved schedule.<sup>42</sup> In the Agreement, the parties agreed that PacifiCorp would request FEMA to shorten the Flood Management Season to begin refilling the project reservoir by March 15 instead of April 1 if forecasts predict below average spring runoffs. As required in Article 302, PacifiCorp would file a revised Standard Operating Procedure Manual with the Commission for review and comment if the Flood Management Season is modified. The Standard Operating Manual would provide details on how the project is to be operated to achieve the desired target elevations, during normal and flood conditions.

61. Article 302 also requires the licensee to notify the Commission by November 1 of each year how they will achieve the 70,000 acre-feet of flood storage.

62. Article 303 requires the licensee to reimburse the U.S. Geological Survey (USGS) for the monthly operating cost of maintaining the telephone line that provides gaging information necessary for operation of the project, as described in the Agreement.

63. Under sections 12.6 and 12.7 of the Agreement, PacifiCorp proposes to provide funding to Clark County and Cowlitz County for the acquisition, installation, and maintenance of a new emergency telephone notification system for those portions of those counties that are subject to inundation. PacifiCorp also proposes to reimburse NOAA for the installation and maintenance of a weather radio transmitter at Davis Peak that provides reservoir storage data, flow data, and flood warnings.

64. Funding of the county's emergency phone system and the NOAA weather transmitter would help improve communications coverage in this rural area. Article 304 requires that PacifiCorp be responsible for these measures. However, implementation of these measures may be accomplished through the funding of a third party.

## **ADMINISTRATIVE PROVISIONS**

### **A. Annual Charges**

65. The Commission collects annual charges from licensees for administration of the FPA and for the use, occupancy and enjoyment of federal lands. Article 201 provides for

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<sup>42</sup> The flood control requirements are the same as in the existing Swift No. 1 license. 48 FERC ¶ 62,106 (1989).

the collection of funds for administration of the FPA and for recompensing the United States for the use of its lands.

### **B. Exhibit F and G Drawings**

66. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Article 202 requires the filing of project works drawings (Exhibit F).

67. PacifiCorp filed Exhibit G (project boundary) maps as part of its license application, and recently revised them based on the use of Light Detection and Ranging (LIDAR), a remote sensing system used to collect topographic data.<sup>43</sup> These maps differ from the currently approved project boundary maps under the existing license. PacifiCorp, however, provides no explanation for the differences in acreage of total lands and federal lands between the approved and proposed maps. This order does not approve the changes, and will instead require PacifiCorp to file revised maps resolving those differences. If this resolution results in removal of certain areas from the project, PacifiCorp may include an amendment of license application with its filing, containing support for its request.

68. I am including Article 203 in the license to require PacifiCorp to file revised Exhibit G drawings that enclose within the project boundary all project facilities and lands, including recreation and wildlife lands and federal lands occupied by the project. The revised drawings must also explain discrepancies in acreages of total lands within the project boundary, including federal land acreages, between currently approved and proposed drawings.

### **C. Headwater Benefits**

69. Some projects directly benefit from headwater improvements that were constructed by other licensees, by the United States, or by permittees. Article 204 requires the licensee to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

### **D. Amortization Reserve**

70. The Commission requires that for new major licenses, licensees must set up and maintain an amortization reserve account upon license issuance. Article 205 requires the establishment of the account.

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<sup>43</sup> See June 7, 2007 filing of PacifiCorp.

### **E. Modified Project Facilities**

71. Article 301 requires the licensee to file revised Exhibit A, F, and G drawings, as applicable, upon the completion of all construction/removal activities authorized by this license, to describe and show those project facilities as built.

### **F. Use and Occupancy of Project Lands and Waters**

72. Requiring a licensee to obtain prior Commission approval for every use or occupancy of the project would be unduly burdensome. Therefore, Article 413, the standard land use article, allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. Such uses must be consistent with the purposes of protecting and enhancing the scenic, recreational, and environmental values of the project.

## **STATE AND FEDERAL COMPREHENSIVE PLANS**

73. Section 10(a)(2) of the FPA<sup>44</sup> requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.<sup>45</sup> Under section 10(a)(2)(A), federal and state agencies filed 73 comprehensive plans that address various resources in Washington. Of these, the staff identified and reviewed 11 comprehensive plans<sup>46</sup> that are relevant to this project. No conflicts were found.

## **APPLICANT'S PLANS AND CAPABILITIES FOR THE MERWIN PROJECT**

74. In accordance with sections 10(a)(2)(c) and 15(a) of the FPA,<sup>47</sup> Commission staff evaluated PacifiCorp's record as a licensee with respect to the following: (A) conservation efforts; (B) compliance history and ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission service; (G) cost effectiveness of plans; and (H) actions affecting the public. I agree with staff's findings in each of the following areas.

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<sup>44</sup> 16 U.S.C. § 803(a)(2)(A) (2000).

<sup>45</sup> Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2007).

<sup>46</sup> The list of applicable plans can be found in Section 5.4 of the EIS at 5-40 to 5-41.

<sup>47</sup> 16 U.S.C. §§ 803(a)(2)(C) and 808(a) (2000).

### **A. Conservation Efforts**

75. PacifiCorp has devised a demand-side management (DSM) program consisting of over 10 components. The DSM program goal is to increase energy efficiency. The principal components of the program are: (1) the Energy FinAnswer, a program that provides engineering and incentive package for improved energy efficiency in new construction and retrofit projects for commercial, industrial and irrigation customers; (2) lighting retrofit incentive for energy efficient lighting retrofits in commercial and industrial facilities; (3) the low income weatherization program; (4) a do-it-yourself home audit; and (5) an energy efficiency education program. Staff concludes that PacifiCorp is making a good faith effort to conserve electricity and promote energy conservation by its customers.

### **B. Compliance History and Ability to Comply with the New License**

76. Commission staff reviewed PacifiCorp's compliance with the terms and conditions of the existing license. Staff finds that PacifiCorp's overall record of making timely filings and compliance with its license is satisfactory. Thus, PacifiCorp has or can acquire the resources and expertise necessary to carry out its plans and comply with all articles and terms and conditions of a new license.

### **C. Safe Management, Operation, and Maintenance of the Project**

77. Commission staff reviewed PacifiCorp's management, operation, and maintenance of the Merwin Project pursuant to the requirements of 18 C.F.R. Part 12 (2007) and the Commission's Engineering Guidelines and periodic Independent Consultant's Safety Inspection Reports. Based on our review of the most recent operation inspection reports, independent consultant's safety inspection reports, and project files, we conclude that the Merwin Project works are in good condition and well maintained. No significant deficiencies were noted during the inspections and no maintenance items require immediate remedial action. There is no reason to deny issuance of the license based on the licensee's record of managing, operating, and maintaining these structures.

78. Staff determined that the dam and other project works are safe, and that there is no reason to believe that PacifiCorp cannot continue to safely manage, operate, and maintain these facilities under a new license.

### **D. Ability to Provide Efficient and Reliable Electric Service**

79. Staff reviewed PacifiCorp's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. Based on review of the information, Staff believes that PacifiCorp will operate the project in an

efficient manner within the constraints of the license and that the project will continue to provide efficient and reliable electric service in the future.

### **E. Need for Power**

80. The Merwin Project is owned and operated by PacifiCorp, a utility supplying electricity to residential, wholesale, commercial and industrial users. PacifiCorp is an integrated electric utility serving more than 1.6 million customers in a six-state service area.

81. Under the terms of this license, the Merwin Project will generate an average of 506,642 megawatt hours (MWh) of electric energy per year which is available to serve the power needs of six western states. The project has a nameplate capacity of 136 MW, and a dependable capacity of 31.9 MW.

82. Residential customers account for 85 percent of PacifiCorp's customers, 11 percent are commercial business, and 4 percent industrial users. PacifiCorp anticipates that 3,171 MW of additional capacity will be needed by 2016 for PacifiCorp to meet its customer loads.<sup>48</sup> Future energy needs will need to be met using a variety of renewable and non-renewable fuel sources, including natural gas, geothermal, and wind facilities.

83. The project is located in the Northwest Power Pool Area (NWPP) of the Western Electricity Coordinating Council (WECC) region of the North American Electric Reliability Council. The peak demand requirements for the NWPP area are projected to grow at an average annual compound rate of 1.5 percent.<sup>49</sup>

84. Based on the above projections, the power from the Merwin Project would continue to be useful in meeting local as well as part of the regional need for power. The project would continue to displace some of the fossil-fueled electric power generation the regional utilities now use, and thereby conserve nonrenewable resources and reduce the emission of noxious byproducts caused by the combustion of fossil fuels.

### **F. Transmission Services**

85. The project's transmission facilities that are required to be licensed include the three 1,000-foot-long, 115-kV lines conveying power from the generator step-up

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<sup>48</sup> PacifiCorp's 2007 Integrated Resource Plan.

<sup>49</sup> 2007 Long-Term Reliability Assessment 2007-2016 to ensure the reliability of the bulk power system. North American Electric Reliability Corporation. Princeton, NJ. October 2007.

transformers to the Merwin substation. PacifiCorp proposes no changes that would affect transmission facilities.

### **G. Cost Effectiveness of Plans**

86. PacifiCorp has no plans for changing project facilities or operations for power development purposes, but is proposing a number of measures for the enhancement of natural resources and recreational opportunities. Staff concludes, based on the license application, that PacifiCorp's plans for implementing these measures, as well as its continued operation of the project, will be achieved in a cost-effective manner.

### **H. Actions Affecting the Public**

87. In its license application, PacifiCorp cited numerous examples of actions it has taken that affect the public, including: providing flood control benefits by using the Lewis River Projects<sup>50</sup> to provide flood control storage, offering energy education to schools, and developing demand-side management programs to assist the public in controlling electrical consumption. During the previous license period, PacifiCorp provided facilities to enhance the public use of project lands, and operated the project with consideration for the protection of downstream uses of the Lewis River. PacifiCorp uses the project to help meet local power needs and also pays taxes annually to local and state governments, and the project provides employment opportunities.

## **PROJECT ECONOMICS**

88. In determining whether to issue a new license for an existing hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*,<sup>51</sup> the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

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<sup>50</sup> On annual basis PacifiCorp provides 70,000 acre-feet of flood control storage for the Lewis River with storage divided between the Merwin, Yale, and Swift No. 1 Projects.

<sup>51</sup> 72 FERC ¶ 61,027 (1995).



89. I considered two options: PacifiCorp's proposed action (the project as proposed by PacifiCorp in accordance with the Agreement) and PacifiCorp's proposed action with staff modifications and mandatory measures (the project as licensed herein). Under the proposed action, the levelized annual cost of operating the project is about \$15,370,000 or \$30.34/MWh. The Merwin Project would generate about 506,642 MWh of energy annually. When we multiply our estimate of average annual generation by the alternative power cost of \$48.25/MWh,<sup>52</sup> we get a total value of the project's power of \$24,444,000. To determine whether the project is currently economically beneficial, we subtract the project costs from the value of the project's power. Therefore, the project would cost \$9,073,000 or \$17.91/MWh less than the likely alternative cost of power.

90. As proposed by PacifiCorp and licensed herein with the staff measures with mandatory measures, the levelized annual cost of operating the project would be about \$15,274,000 million, or about \$30.15/MWh. Based on an estimated average generation of 506,642 MWh, the project would produce power valued at \$24,444,000 when multiplied by the \$48.25/MWh value of the project's power. Therefore, in the first year of operation the project power would cost \$9,170,000 or \$18.1/MWh less than the likely cost of alternative power.

91. In analyzing public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary benefits). For projects with useable water storage, these benefits include their value as almost instantaneous load-following response to dampen voltage and frequency instability on the transmission system, system-power-factor-correction through condensing operations, and a source of power available to help in quickly putting fossil-fuel based generating stations back on line following a major utility system or regional blackout. The Merwin Project will continue to provide a broad range of ancillary service benefits to the region.

## COMPREHENSIVE DEVELOPMENT

92. Sections 4(e) and 10(a)(1) of the FPA<sup>53</sup> require the Commission to give equal consideration to the power development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a

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<sup>52</sup> Power value estimates are based on PacifiCorp's December 1, 2006 filing for the Klamath Hydroelectric Project No. 2082.

<sup>53</sup> 16 U.S.C. §§ 797(e) and 803(a)(1) (2000).

waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

93. The EIS for the Merwin Project contains the background information, analysis of effects, and support for related license requirements.

94. Based on our independent review and evaluation of the project, recommendations from the resource agencies and other stakeholders, and the no-action alternative, as documented in the EIS, I have selected the proposed Merwin Project, and find that it is best adapted to a comprehensive plan for improving and developing the Lewis River.

95. I selected this alternative because: (1) issuance of a new license will serve to maintain a beneficial, dependable, and an inexpensive source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreation resources, and historic properties; and (3) the 136 MW of electric energy generated from a renewable resource will continue to offset the use of fossil-fueled, steam-generating electric generating plants, thereby conserving nonrenewable energy resources and reducing atmospheric pollution.

## LICENSE TERM

96. Section 15(e) of the FPA<sup>54</sup> provides that any new license shall be for a term that the Commission determines to be in the public interest, but not be less than 30 years nor more than 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigation and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures.

97. The license for the Merwin Project requires extensive long-term environmental measures including construction of a modular surface collector and transport facilities for salmon and steelhead smolts at the Merwin Project, installation of upstream and downstream passage facilities for bull trout, habitat enhancement measures, upgrades to Lewis River hatcheries, a comprehensive aquatic monitoring program, and new recreational facilities and improvements to existing facilities. The annualized capital costs for environmental measures for the Merwin Project are in excess of \$10 million. Therefore, a term of 50 years is appropriate.<sup>55</sup>

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<sup>54</sup> 16 U.S.C. § 808(e) (2000).

<sup>55</sup> The parties agreed to support or not oppose the licensees' request that the Commission issue new licenses for 50 years. *See* section 1.6 of the Agreement.

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The Director orders:

(A) This license is issued to PacifiCorp (licensee) for a period of 50 years, effective the first day of the month in which this order is issued. The license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in these lands, described in the project description and the project boundary discussion of this order.

(2) Project works consisting of: (a) a reservoir (Lake Merwin) with a surface area of 4,000 acres at the normal maximum operating level (239.6 feet mean sea level); (b) a 728-foot-long, 313-foot-high concrete variable radius arch dam (Merwin dam) with a crest elevation of 240 feet mean sea level; (c) a 75-foot-long, concrete gravity thrust block; (d) a 206-foot-long concrete gated overflow spillway with a crest elevation of 205.0 feet mean sea level, and flow controlled by five Taintor gates that return flow to the Lewis River; (e) a 209-foot-long, concrete non-overflow section; (f) a 34 foot-long, concrete wall; (g) a 1,462-foot-long, horseshoe-shaped diversion tunnel; (h) four intakes with one intake/penstock bulkheaded on the downstream end for future development; (i) three 150-foot-long, 15.6-foot-diameter penstocks; (j) a 304-foot-long by 104-foot-wide reinforced concrete semi-outdoor powerhouse, containing three 45-megawatt (MW) units and one 1-MW house generating unit, having a total installed capacity of 136 MW; (k) three 1,000-foot-long, 115-kilovolt transmission lines from each step-up transformer to the Merwin substation; and (l) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F shown below:

Exhibit A: The following parts of exhibit A filed on April 28, 2004:

Table A 3.0-1 entitled "Merwin Project Data" on pages 3 and 4, and section A3.2 entitled "Major Mechanical Systems."

Exhibit F: The following exhibit F drawings filed on April 28, 2004:

<u>Exhibit F</u>	<u>FERC Drawing No. 935-</u>	<u>Title</u>
<u>Drawing</u>		

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<u>Exhibit F Drawing</u>	<u>FERC Drawing No. 935-</u>	<u>Title</u>
Sheet F-1	1001	General Plan and Sections
Sheet F-2	1002	Powerhouse Plan and Sections
Sheet F-3	1003	Spillway Plan and Sections
Sheet F-4	1004	Non-overflow section and thrust block elevations and sections

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, and F described above are approved and made part of this license. The revised Exhibit G drawings filed on June 6, 2007 are inconsistent with regard to lands occupied by the project, including amount of federal lands, under the previous license and are not approved.

(D) This license is subject to the conditions submitted by the Washington Department of Ecology under section 401(a)(1) of the Clean Water Act, as those conditions are set forth in Appendix A to this order.

(E) This license is subject to the conditions submitted by the Secretary of the U.S. Department of Commerce under section 18 of the FPA, as those conditions are set forth in Appendix B to this order.

(F) This license is subject to the conditions submitted by the Secretary of the U.S. Department of the Interior under section 18 of the FPA, as those conditions are set forth in Appendix C to this order.

(G) This license is subject to the incidental take terms and conditions of the Biological Opinion submitted by the National Marine Fisheries Service under section 7 of the Endangered Species Act, with the exception of section 6.1.5.a of the Agreement (flows through the upper release point during spill flows), as those conditions are set forth in Appendix D of this order.

(H) This license is subject to the incidental take terms and conditions of the Biological Opinion submitted by the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act, as those conditions are set forth in Appendix E of this order.

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(I) This license is also subject to the articles set forth in Form L-1 (Oct. 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States" (*see* 54 FPC 1799 *et seq.*), and the following additional articles:

Article 201. *Annual Charges.* The licensee shall pay the United States annual charges, effective the first day of the month in which the license is issued, and as determined in accordance with provisions of the Commission's regulations in effect from time to time, for the purposes of:

(a) reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 136,000 kilowatts.

(b) recompensing the United States for the use, occupancy and enjoyment of lands the amount to be determined pursuant to article 203.

Article 202. *Exhibit Drawings.* Within 45 days of the date of issuance of this license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

(a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Drawing Number (e.g., P-935-1001 through P-935-1004) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office.

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office. The drawings must be identified as (CEII) material under 18 CFR § 388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension [e.g., P-935-1001, F-1, Description, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file  
FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4  
RESOLUTION – 300 dpi desired, (200 dpi min)  
DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)  
FILE SIZE – less than 1 MB desired

Article 203. Exhibit G Drawings. Within 90 days of the issuance date of the license, the licensee shall file, for Commission approval, revised Exhibit G drawings enclosing within the project boundary all principal project works necessary for operation and maintenance of the project, including the project’s transmission facilities and substations, and the following PacifiCorp-owned wildlife lands: (1) 5,600-acre Merwin Wildlife Habitat Management Area; and (2) all PacifiCorp-owned lands adjacent to the project boundary, except as provided in Exhibit A of the Settlement Agreement filed on December 3, 2004. Differences between the currently approved and the revised Exhibit G drawings, including the federal land acreages, shall be indicated and explained. The Exhibit G drawings must comply with sections 4.39 and 4.41 of the Commission’s regulations, 18 C.F.R. §§ 4.39 and 4.41 (2007).

Article 204. Headwater Benefits. If the licensee's project was directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license. The benefits will be assessed in accordance with Part 11, Subpart B, of the Commission's regulations.

Article 205. Amortization Reserve. Pursuant to section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 301. As-built Drawings. Within 90 days of completion of all construction/removal activities authorized by this license, the licensee shall file for Commission approval, revised exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission's Division of Dam Safety and Inspections (D2SI)--Portland Regional Engineer, the Director, D2SI, and the Director, Division of Hydropower Administration and Compliance.

Article 302. Flood Management. The licensee shall cooperate with the licensees for Yale Hydroelectric Project No. 2071, and Swift No. 1 Project No. 2111 to provide not less than 70,000 acre-feet of storage space for flood control on the Lewis River, beginning withdrawal by September 20 and reaching not less than 70,000 acre-feet by November 1 of each year, and retaining such space through April 1 and permitting gradual filling by April 30 of the following year, according to the following schedule:

<u>Date</u>	<u>Minimum Storage Space (Acre-feet)</u>
September 20	0
October 10	35,000
November 1-April 1	70,000
April 15	35,000
April 30	0

By November 1 of each year, the licensee shall provide a letter to the Division of Dam Safety and Inspections (D2SI) – Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI) detailing how the 70,000 acre-feet of flood storage will be achieved.

The licensee shall also periodically review the Standard Operating Procedure

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Manual for the Lewis River Projects with the other dam owners on the Lewis River and Corps of Engineers, and revise the procedures when necessary. The licensee shall submit one copy of the manual for review and comment to the Commission's Division of Dam Safety and Inspections (D2SI) – Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI) within 60 days from the issuance date of the license, as well as whenever the procedures are revised.

Article 303. Telephone Maintenance. The licensee shall cooperate with the licensees for the Swift No. 1 Project No. 2111 and Yale Project No. 2071 to reimburse the United States Geological Survey for the monthly operation cost of maintaining the telephone line that provides gaging information necessary for the operation of the Lewis River Projects, consistent with section 12.7 of the Settlement Agreement filed on December 3, 2004.

Article 304. Emergency Communications. Within 1 year of the effective date of this license, the licensee shall cooperate with the licensees for the Swift No. 1 Project No. 2111 and Yale Project No. 2071 to implement the following emergency communication provisions consistent with section 12.4.1 and 12.6 of the Settlement Agreement filed on December 3, 2004:

(a) acquire, install, and maintain a new emergency telephone notification service for those portions of Clark County and Cowlitz County that are subject to inundation from the Lewis River Projects; and

(b) provide for a weather radio transmitter at Davis Peak.

Article 401. Scheduling and Reporting Requirements and Amendment Applications.

(a) Requirement to File Plans for Commission Approval and Requirement to Consult

Various conditions of this license required by Appendices B (Department of Commerce section 18 fishway prescription) and C [Department of the Interior fishway prescription) of this order, and Appendix D of this order [National Marine Fisheries Service (NMFS) biological opinion (BO)], require the licensee to prepare plans for approval by some or all of the signatories of the Lewis River Settlement Agreement. Each such plan shall also be submitted to the Commission for approval and shall include an implementation schedule. These plans are listed below.

	Commerce/ Interior section	NMFS BO condition	Plan	Due Date



	18 condition			
1	7.1	1 (4.1.8.e)	Upstream transport plan	Within 18 months of license issuance
2	8.1	1 (4.1.8.e)	Downstream transport plan	Within 18 months of license issuance
3	9	1 (4.6)	Downstream passage design at Merwin dam	Within 13.5 years of license issuance
4	10	1 (4.4.3)	Design of stress release ponds	Within 1 year of license issuance
5	12	1 (4.9)	Bull trout collection and transport program	Within 6 months of license issuance.
6		1 (7.4)	Habitat preparation plan	Within 6 months of license issuance.
7		1 (7.5)	Aquatics fund strategic plan and annual report	Within 1 year of license issuance; report annually after license issuance
8		1 (7.6)	In-lieu fund strategic plan and annual report	Within 1 year of establishment of in-lieu fund; report annually after establishment of in-lieu fund
9		1 (8.2)	Hatchery and supplementation plan	Within 1 year of license issuance, updates every 5 years thereafter
10		1 (8.2.3)	Hatchery and supplementation operating plan	Annually, after approval of the hatchery and supplementation plan
11		1 (9.1)	Monitoring and evaluation plan.	Within 2 years of license issuance

The licensee shall submit to the Commission documentation of its consultation, copies of comments and recommendations made in connection with the plan, and a description of how the plan accommodates the comments and recommendations. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The Commission reserves the right to make changes to any plan submitted. The plan shall not be implemented until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the plan becomes a requirement of the license, and the licensee shall implement the plan or changes in

project operations or facilities, including any changes required by the Commission.

(b) Requirement to File Amendment Applications

Certain conditions in the appendices contemplate unspecified long-term changes to project operations, requirements, or facilities for the purpose of protecting and enhancing environmental resources. These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license (18 CFR 4.200). The conditions are listed below.

	Condition No.	Modification
1	Section 18 no. 4.5 and BO no. 1	Adjustments or modifications to passage facilities to achieve performance standards
2	Section 18 no. 7 and BO no. 1	Implementation of alternative fish transport technologies, should they be deemed necessary
3	Section 18 no. 8 and BO no. 1	Implementation of an alternate method of downstream fish passage
4	Section 18 no. 9.2 and BO no. 1	Merwin trap upgrades
5	Section 18 no. 10 and BO no. 1	Construction of stress release ponds
6	Section 18 no. 11 and BO no. 1	Construction of upstream fish passage facility

Article 402. Aquatic Resources Management Measures. The licensee shall continue to implement the following aquatic resources management measures:

(a) follow the National Marine Fisheries Service and U.S. Fish and Wildlife Service's facility and handling guidelines for anadromous fish and bull trout;

(b) support the Washington Department of Fish and Wildlife's annual evaluation of fall Chinook in the lower Lewis River; and

(c) in conjunction with the Swift No. 1 Project No. 2111 and the Yale Project No. 2071 annually evaluate bull trout and kokanee populations.

The licensee shall include evidence of compliance with these measures in the annual reports filed with the Commission under section 14.2.6 of the Settlement Agreement (Agreement) filed on December 3, 2004.

In addition, the licensee shall file with the Commission within 2 years of license issuance, a bull trout limiting factor analysis, as described in section 5.5 of the Agreement filed on December 3, 2004.

Article 403. Wildlife Habitat Management Plan. Within 6 months from the issuance of this license, the licensee shall file with the Commission for approval, a Wildlife Habitat Management Plan (Habitat Plan) as described in section 10.8 of the Settlement Agreement (Agreement) filed on December 3, 2004. The Habitat Plan shall be developed for lands that are associated with the Merwin Project (as shown in Exhibit A to the Agreement and designated in section 10.8.1 of the Agreement). The purpose of the Habitat Plan shall be to accomplish the wildlife objectives referenced in Schedule 10.8 of the Agreement. The licensee shall continue to implement the current Merwin Project Wildlife Habitat Management Plan in the Merwin Wildlife Habitat Management Area until approval of the new Habitat Plan required by this article.

The Habitat Plan shall be developed after consultation with Terrestrial Coordination Committee (as defined in section 14 of the Agreement). The licensee shall include with the Habitat Plan an implementation schedule, documentation of consultation, copies of recommendations on the schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific reasons.

The Commission reserves the right to require changes to the plan. Implementation of the Habitat Plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

The licensee shall file annual plans provided by section 10.8.3 of the Agreement, for Commission approval, outlining the proposed wildlife measures and costs and showing the benefit to resources affected by project structures or operations. The annual plans shall explain the consistency with wildlife objectives outlined in the Agreement.

The licensee shall review the effectiveness of the Habitat Plan consistent with section 10.8.4 of the Agreement. The licensee shall file for Commission approval, within 18 years of issuance of the license, the results of the analysis, and any proposed changes to the Habitat Plan.

Article 404. Wildlife and Terrestrial Resources Management Measures. The licensee shall continue to implement the following measures to protect wildlife and terrestrial resources:

(a) buffer sensitive aquatic and terrestrial habitat from ground-disturbing activities (timber harvest, construction, etc.);

(b) maintain road closures through sensitive habitat areas by installing and maintaining gates, and identify additional areas for access control on PacifiCorp lands;

(c) manage PacifiCorp lands to benefit wildlife habitat; and

(d) continue to manage project roads to maintain existing aquatic connectivity and control runoff and erosion.

The licensee shall include evidence of compliance with these measures in the annual reports filed with the Commission under section 14.2.6 of the Settlement Agreement filed on December 3, 2004.

Article 405. Recreation Resources Management Plan. The licensee shall implement the Recreation Resources Management Plan (Recreation Plan) dated April 2004 as it relates to the relicensing of the Merwin Project, consistent with section 11.2.3 of the Settlement Agreement (Agreement) filed on December 3, 2004, with the exception of measures required by sections 11.2.3.4 (South Shore Merwin Trail Access), 11.2.3.11 (Day Use Parking), and 11.2.4.3 (Lower Lewis River Sites) of the Agreement. The following existing facilities shall be operated and maintained for the term of the license: Merwin Park, Cresap Bay Campground and Day Use Area, Marble Creek Trail, Speelyai Bay Park, and all existing trails within the Merwin Project boundary. In addition, within 1 year of license issuance, the licensee shall file a report documenting the implementation of the public information program to protect bull trout as outlined in section 5.7 of the Agreement.

Article 406. South Shore Merwin Trail Access Plan. Within 2 years of license issuance, the licensee shall file with the Commission for approval, a plan to provide a trail easement to connect a proposed Clark County regional park to the south side of Lake Merwin, as outlined in section 11.2.3.4 of the Settlement Agreement filed on December 3, 2004. The plan shall include a map showing the location of the trail easement and a schedule for implementation. Upon Commission approval, the licensee will be required to file revised Exhibit G drawings incorporating the trail within the Merwin Project boundary.

The access plan shall be developed after consultation with Clark County. The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan

with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific reasons.

The Commission reserves the right to require changes to the plan. Improvements shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

Article 407. Recreation Renovation Plan. Within 6 months of the completion of the accessibility evaluation proposed under section 11.2.3.5 of the Settlement Agreement (Agreement) filed on December 3, 2004, the licensee shall file with the Commission, for approval, a report that summarizes the findings of the evaluation and includes the licensee's plan for modifying existing facilities based on the results of the evaluation. The plan shall include a narrative description of the proposed facility modifications, conceptual design drawings, and an implementation schedule.

The plan for modifying existing recreation facilities shall be developed after consultation with Lewis River Advisory Committee (Committee) (as defined in section 11.2.16 of the Agreement). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the Committee, and specific descriptions of how the Committee's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the Committee to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific reasons.

The Commission reserves the right to require changes to the plan. Improvements shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

Article 408. Day Use Parking Plan. Within 12 years of license issuance, the licensee shall file with the Commission for approval, a plan to assess the feasibility of additional parking with trail access to the boat launch area at Speelyai Bay Park, as outlined in section 11.2.3.11 of the Settlement Agreement (Agreement) filed on December 3, 2004. The plan shall include the results of a feasibility study to identify the most feasible location to construct the parking and trail access, and, if the study results find these facilities to be feasible, a plan providing detailed design drawings, and a schedule for construction.

The access plan shall be developed after consultation with Lewis River Advisory

Committee (Committee) (as defined in section 11.2.16 of the Agreement). The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the Committee, and specific descriptions of how the Committee's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the Committee to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific reasons.

The Commission reserves the right to require changes to the plan. Improvements shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission.

Article 409. *Merwin Hatchery Access Site.* Within 1 year of license issuance, the licensee shall file a report documenting the completion of construction at this site and the installation of one single-vault toilet and two picnic tables at the Merwin Hatchery River Access site, as outlined in 11.2.4.1 and 11.2.4.2 of the Settlement Agreement filed on December 3, 2004.

Article 410. *Reservation of Authority to Prescribe Fishways.* Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 411. *Columbia River Basin Fish and Wildlife Program.* The Commission reserves the authority to order, upon its own motion or upon the recommendation of federal and state fish and wildlife agencies, affected Indian Tribes, or the Northwest Power and Conservation Council, alterations of project structures and operations to take into account to the fullest extent practicable the regional fish and wildlife program developed and amended pursuant to the Pacific Northwest Electric Power Planning and Conservation Act.

Article 412. *Programmatic Agreement and Historic Properties Management Plan.* The licensee shall implement the Programmatic Agreement Among the Federal Energy Regulatory Commission and the Washington State Historic Preservation Officer for Managing Historic Properties that may be Affected by a License Issuing to PacifiCorp for the Continued Operation of the Swift No. 1, Yale, and Merwin Hydroelectric Projects in Clark, Cowlitz, and Skamania Counties, Washington (FERC Nos. 2111, 2071, and 935), executed on November 24, 2005, including but not limited to the Historic Properties Management Plan (HPMP) for the projects. In the event that the

Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated, the licensee shall obtain approvals from or make notifications to the Commission and the Washington State Historic Preservation Office where the HPMP calls upon the licensee to do so.

Article 413. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b),

the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state



approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

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(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(J) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(K) This order is final unless a request for rehearing is filed within 30 days of the date of its issuance, as provided in section 313(a) of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

J. Mark Robinson  
Director  
Office of Energy Projects

**Form L-1**

(October, 1975)

**FEDERAL ENERGY REGULATORY COMMISSION  
TERMS AND CONDITIONS OF LICENSE  
FOR CONSTRUCTED MAJOR PROJECT AFFECTING  
LANDS OF THE UNITED STATES**

**Article 1.** The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

**Article 2.** No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

**Article 3.** The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

**Article 4.** The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate,

who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

**Article 5.** The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights or occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

**Article 6.** In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a nonpower licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of

the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

**Article 7.** The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

**Article 8.** The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

**Article 9.** The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

**Article 10.** The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission any direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

**Article 11.** Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

**Article 12.** The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

**Article 13.** On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

**Article 14.** In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the

liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

**Article 15.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

**Article 16.** Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

**Article 17.** The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

**Article 18.** So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and

waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

**Article 19.** In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

**Article 20.** The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

**Article 21.** Timber on lands of the United State cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber so sold or disposed of shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the Licensee and in coordination with the Licensee's project construction schedules. Such sale or disposal to others shall not relieve the Licensee of responsibility for the clearing and disposal of all slash and debris from project lands.

**Article 22.** The Licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The Licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the



works appurtenant or accessory thereto under the license.

**Article 23.** The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

**Article 24.** The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

**Article 25.** The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

**Article 26.** In the construction and maintenance of the project, the location and standards of roads and trails on lands of the United States and other uses of lands of the United States, including the location and condition of quarries, borrow pits, and spoil disposal areas, shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

**Article 27.** The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its

jurisdiction.

**Article 28.** The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the transmission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

**Article 29.** The Licensee shall cooperate with the United States in the disposal by the United States, under the Act of July 31, 1947, 61 Stat. 681, as amended (30 U.S.C. sec. 601, et seq.), of mineral and vegetative materials from lands of the United States occupied by the project or any part thereof: Provided, That such disposal has been authorized by the Commission and that it does not unreasonably interfere with the occupancy of such lands by the Licensee for the purposes of the license: Provided further, That in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

**Article 30.** If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

**Article 31.** The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under

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the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

**Article 32.** The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

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## **APPENDICES**

The Settlement Agreement filed on December 2 and 3, 2004, for the four Lewis River Projects (for information only) is attached for ease of reference in Appendix A for the Swift No. 1 Project No. 2111, 123 FERC ¶ 62,260 (2008).

Appendix A – Washington Department of Ecology Section 401 Water Quality Certification

Appendix B – U.S. Department of Commerce Section 18 Fishway Prescription

Appendix C – U.S. Department of the Interior Section 18 Fishway Prescription

Appendix D -- National Marine Fisheries Service Biological Opinion Terms and Conditions

Appendix E – U.S. Fish and Wildlife Service Biological Opinion Terms and Conditions

## APPENDIX A

### State of Washington, Department of Ecology Water Quality Certification under Section 401 of the Clean Water Act for the Merwin Project No. 935

October 26, 2006

Amended December 21, 2007 and January 17, 2008

#### 4.0 CONDITIONS

Through issuance of this Certification-Order, Ecology certifies that it has reasonable assurance that the operation of the Merwin Project and activities associated with its continued operation as conditioned will be conducted in a manner that will not violate applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 USC § 1341, RCW 90.48.120, RCW 90.48.260, and Chapter 173-201A WAC, this water quality certification is granted to PacifiCorp for the Merwin Hydroelectric Project (FERC No. 935) subject to the conditions within this Certification-Order.

Certification of this project does not authorize the Licensee to exceed applicable state water quality standards (Chapter 173-201A WAC). Furthermore, nothing in this Certification-Order shall absolve the Licensee from liability for contamination and any subsequent cleanup of surface waters, ground waters, or sediments occurring as a result of activities associated with Project operations and FERC license conditions.

#### 4.1 GENERAL REQUIREMENTS

- 1) The project shall comply with all water quality standards approved by the Environmental Protection Agency (currently codified in ch. 173-201A WAC), ground water quality standards (currently codified in ch. 173-200 WAC), and sediment quality standards (currently codified in ch. 173-204 WAC) and other appropriate requirements of state law. The conditions below set forth adaptive management processes and measures to achieve full compliance with standards and constitute a water quality attainment plan under the 2003 WAC 173-201A-510(5) for TDG and temperature.
- 2) In the event of changes or amendments to the state water quality, ground water quality, or sediment standards, or changes in or amendments to the state Water Pollution Control Act (RCW 90.48), or changes in or amendments to the Clean Water Act, such provisions, standards, criteria, or requirements shall apply to this project and any attendant agreements, orders or permits. Ecology will notify the Licensee through an Administrative Order of any such changes or amendments applicable to its project.

- 3) Discharge of any solid or liquid waste to the waters of the state of Washington without approval from Ecology is prohibited.
- 4) The Licensee shall obtain Ecology review and approval before undertaking any change to the project or project operations that might significantly and adversely affect the water quality or compliance with any applicable water quality standard (including designated uses) or other appropriate requirement of state law.
- 5) This Certification-Order does not exempt compliance with other statutes and codes administered by federal, state, and local agencies.
- 6) A Hydraulic Project Approval (HPA) (under 77.55 RCW) shall be acquired from the Washington State Department of Fish and Wildlife (WDFW) prior to any work in waters of the State.
- 7) Ecology retains the right, by further Order, to modify schedules or deadlines provided under this Certification-Order or provisions it incorporates.
- 8) Ecology retains the right by Administrative Order to require additional monitoring, studies, or measures if it determines there is likelihood that violations of water quality standards or other appropriate requirements of state law have occurred or may occur, or insufficient information exists to make such determination.
- 9) Ecology reserves the right to amend this Certification-Order if it determines that the provisions hereof are no longer adequate to provide reasonable assurance of compliance with applicable water quality standards or other appropriate requirements of State law. Any such amended Certification-Order shall take effect immediately upon issuance, unless otherwise provided in the amended Certification-Order, and may be appealed to the Pollution Control Hearings Board (PCHB) under ch. 43.21B RCW.
- 10) Ecology reserves the right to issue administrative orders, assess or seek penalties, and to initiate legal actions in any court or forum of competent jurisdiction for the purposes of enforcing the requirements of this Certification-Order.
- 11) The conditions of this Certification-Order shall not be construed to prevent or prohibit the Licensee from either voluntarily or in response to legal requirements imposed by a court, the FERC, or any other body with competent jurisdiction, taking actions which will provide a greater level of protection, mitigation, or enhancement of water quality or of existing or designated uses.
- 12) If five (5) or more years elapse between the date this Certification-Order is issued and issuance of the new FERC license for the Project, this Certification-Order shall be deemed to be expired and denied without prejudice at such time and the Licensee shall send Ecology an updated application for a Clean Water Act Section 401 Certification that reflects then current conditions, regulations and technologies. This provision shall not be construed to otherwise limit the reserved

authority of Ecology to withdraw, amend, or correct the Certification-Order before or after the issuance of a FERC license.

- 13) This Certification-Order may be modified or withdrawn by Ecology prior to the issuance of the license based upon significant new information or changes to water quality standards or appropriate requirements of state law.
- 14) Copies of this Certification-Order and associated permits, licenses, approvals and other documents shall be kept on the Project site and made readily available for reference by the Licensee, its contractors and consultants, and by Ecology.
- 15) The Licensee shall allow Ecology access to inspect the project and project records required by this Certification-Order for the purpose of monitoring compliance with its conditions. Access shall occur after reasonable notice, except in emergency circumstances.
- 16) The Licensee shall, upon request by Ecology, fully respond to all reasonable requests for materials to assist Ecology in making determinations under this Certification-Order and any resulting rulemaking or other process.
- 17) Any work that is out of compliance with the provisions of this Certification-Order, or conditions that result in distressed, dying or dead fish, or any discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, or turbidity greater than 5 NTU over background in Lake Merwin; or greater than 5 NTU over background conditions or greater than 10% below Merwin Dam if background conditions are greater than 50 NTU is prohibited. If these conditions occur, the Licensee shall immediately take the following actions:
  - a) Cease operations at the location of the violation to the extent such operations may reasonably be causing or contributing to the problem.
  - b) Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.
  - c) Notify Ecology of the failure to comply. Oil or chemical spill events shall be reported immediately to Ecology's 24-Hour Spill Response Team at (800) 258-5990 within 24 hours. Other non-compliance events shall be reported to Ecology's Federal Permit Manager at 800 424-8802.
  - d) Submit a detailed written report to Ecology within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.
  - e) Observed violations at the project shall be highlighted in the annual monitoring report.

Compliance with these requirements does not relieve the Licensee from responsibility to maintain continuous compliance with the terms and conditions

of this Certification-Order or the resulting liability from failure to comply.

- 18) The project shall meet the Class A standards below Merwin Dam and Lake Standards in Lake Merwin listed in WAC 173-201A-030.
- 19) A Water Quality Management Plan (WQMP) is required. All water quality related plans described below shall be included as separate sections of the WQMP.

#### **4.2 INSTREAM FLOWS AND RAMPING RATES BELOW MERWIN DAM**

- 1) The project shall comply with the instream flow measures identified in Section 9.8 of the Settlement Agreement signed November 30, 2005, submitted to FERC December 9, 2005, and provided herein as Exhibit A.
- 2) Spill from Merwin will be calculated and reported for every change in gate opening in accordance with condition 4.8.3 of this Certification-Order under Monitoring and Reporting.

#### **4.3 TOTAL DISSOLVED GAS (TDG)**

- 1) The Project shall not cause any exceedance of the TDG water quality criteria as specified in WAC 173-201A 030 (2)(c)(iii) below Merwin Dam, WAC 173-201A(5)(c)(iii) in Lake Merwin, and 173-201A-060 (4)(a) in any waters of the Project.
- 2) The Licensee shall operate Merwin Dam to maintain the TDG associated with air-injected to turbine flows to 110% or less TDG.
  - a) The Licensee shall perform water quality monitoring in turbine water below Merwin Dam for turbine air injection generated TDG in accordance with condition 4.8.3 of this Certification-Order under Monitoring and Reporting.
  - b) If, over the term of the license, turbines are replaced or modified, design such turbines to minimize TDG production.
- 3) The Licensee shall manage spill to limit TDG production to 110% or less saturation.
  - a) The Licensee shall monitor spill water beginning during the first spill event after this Certification-Order is issued and as specified in the monitoring plan in Exhibit C and in conditions 4.2.2 under Flows and 4.8.3 of this Certification-Order under Monitoring and Reporting.
  - b) Within six (6) months of the discovery of any exceedance of the 110% TDG criterion caused by spill, the Licensee shall submit a TDG Water Quality Attainment Plan (TDG WQAP) to Ecology for review and approval. The TDG WQAP plan shall include:



- i. A description of standard Project operations with regard to minimizing TDG associated with spills;
  - ii. A description of how the Project will minimize all spills that produce TDG exceedances at the Project;
  - iii. An evaluation of all potential and preferred structural and operational improvements to minimize TDG production;
  - iv. A timeline showing when operational adjustments will occur;
  - v. A schedule for construction; and
  - vi. Monitoring plans to further evaluate TDG production and to test for effectiveness of gas abatement controls.
- c) The Project shall operate according to the approved TDG WQAP with the objective of eliminating TDG exceedances.
- d) Upon approval of the TDG WQAP, the Licensee shall immediately begin the necessary steps identified in the TDG WQAP to eliminate TDG criteria exceedances.
- e) If monitoring to test the effectiveness of gas abatement controls implemented through the TDG WQAP shows the TDG abatement measures identified in the Plan and subsequently employed are not successful in meeting the water quality criterion, then, within the first ten (10) years of discovery of TDG criterion exceedances caused by spill, Ecology will require further activities to meet the water quality criterion. Significant structural or operational revisions that may impose potentially unreasonable costs or create potentially unreasonable societal effects may be evaluated as part of a formal Use Attainability Analysis consistent with the federal and state water quality regulations after the ten (10) year compliance period has ended.
- 4) Provided that all reasonable operational efforts are made to minimize TDG exceedances and Ecology is notified within 24 hours after the onset of the spill, compliance with the 110% TDG criteria does not apply, when:
- a) Actual or predicted flows in the Lewis River exceed the rate equivalent to the 7Q10 flows as defined in WAC 173-201A-060(4)(a). At the writing of this Certification-Order, the 7Q10 flow for the Lewis River at Merwin Dam is 32,884 cfs. Either the Licensee or Ecology may request to reassess and modify the established 7Q10 flow. Modification and application of the 7Q10 flow requires Ecology's approval.

Because the Project exerts some control over the timing and amplitude of storm flows, a qualifying 7Q10 event for the purposes of the TDG criteria exemption includes flows accompanied by an actual or forecasted large storm event that provides an equivalent amount of water to the drainage basin,

regardless of flows at Merwin Dam. Calculations of such qualifying events shall follow language contained in the Settlement Agreement pertaining to High Runoff Procedures (SA 12.8) which states:

*“PacifiCorp shall obtain 3-day river flow forecasts from a reputable third party forecasting organization (which may include the National Weather Service’s River Forecasting Center) for the Lewis River Watershed. This 3-day river flow forecast shall be used by PacifiCorp in its forecast-based high runoff procedure as described below. PacifiCorp shall periodically evaluate the forecasts being used against other commonly available forecasts, with the goal of improving forecasting accuracy for flood management through the use of evolving technology, to the extent practicable.”*

*“During the Flood Management Season, PacifiCorp shall calculate the “Forecasted Flow” for the Lewis River from the 3-day forecast by determining the forecasted flow that has an 85% probability of occurring. In the event that it appears that the Forecasted Flow will result in inflows significant enough to utilize a portion of the 17 feet of hole, as defined in the Manual, reserved for flood management purposes, PacifiCorp shall make a Pre-Release to provide additional capacity to store inflows into the reservoirs during the high-runoff event. Once the total hole is reduced to 17 feet, PacifiCorp shall continue to follow the flow release procedures contained in the Manual as of the Effective Date.”*

Any observed spike of TDG at the Merwin Dam forebay shall not be considered a TDG criteria exceedance if it was formed during a qualifying 7Q10 event at Swift No. 1.

- b) Short term spills are necessary to protect public safety and respond to volcanic activity.
- 5) During high flows greater than the 7Q10, the Licensee shall manage spill levels and spill gate configuration to minimize TDG production.

#### **4.4 TEMPERATURE AND DISSOLVED OXYGEN**

- 1) Lewis River. The Project shall not cause any violation of the temperature and dissolved oxygen water quality criteria as specified for Class ‘A’ waters, WAC 173-201A-030(2)(c)(ii) and (iv) in and below Merwin Dam. The Licensee shall not cause these waters to exceed 18°C nor dissolved oxygen concentrations to go below 8 mg/L. If the presence or operation of the dam causes violation of these

criteria, the Licensee shall modify its operation to the extent necessary to ensure that the Project does not cause such exceedance.

- 2) Lake Merwin. The Project shall not cause any violation of the temperature or dissolved oxygen water quality criteria as specified for Lake Class waters in WAC 173-201A-030(5)(c)(ii) and (iv) in Lake Merwin. If the presence or operation of the Merwin Dam causes violation of these criteria, the Licensee shall modify its operation to the extent necessary following the compliance schedule outlined below to ensure that the Project does not cause such exceedance. The Lake Class temperature and dissolved oxygen criteria that applies to the reservoir mandates no measurable change from natural conditions. The Merwin Dam has created artificial lake conditions over which the project has some control. In such circumstances, Ecology requires the Licensee to use all reasonable and feasible measures to achieve conditions that best protect the designated or characteristic uses for fish and shellfish (WAC 173-201A(2)(b)(iii)) within the reservoir.
- 3) The Licensee shall develop a Temperature Water Quality Attainment Plan (TWQAP) for the Lake Merwin canyon (Canyon). The purpose of this TWQAP is to identify and maintain the highest attainable water quality conditions to provide a temperature regime that is reasonable and feasible to achieve and which will best protect the cold-water biota. The TWQAP must include a reasonable compliance schedule for carrying out an adaptive process within ten (10) years of license renewal to evaluate feasible technical and operational changes to improve temperature for cold water biota using the steps outlined below:
  - a) Identify the Canyon's species of fish and macroinvertebrates (identified to the lowest practical level) and determine where they are found in the water column at different life stages and different times of day;
  - b) evaluate the temperature requirements of those organisms that use the upper water column;
  - c) evaluate the effects of the project-related temperature fluctuations on these organisms;
  - d) identify all potential temperature improvements in the Canyon which will protect the organisms in the upper water column, lower water column and the benthos;
  - e) pursue all reasonable and feasible methods to ensure that the water temperature fluctuations in the Canyon remain below levels which would harm the aquatic biota or limit the potential healthy cold water habitat; and
  - f) Identify follow-up studies and actions that can be taken to further improve the temperature regime for cold-water biota.
- 4) A draft of the TWQAP shall be submitted for Ecology review and approval. This draft shall be submitted within one (1) year of license issuance.

- 5) The Licensee shall monitor temperature and dissolved oxygen in the forebay and tailrace of Merwin Dam in accordance with condition 4.8.3 of this Certification-Order under Monitoring and Reporting. This monitoring is in addition to any temperature monitoring required in the approved TWQAP.

#### **4.5 CONSTRUCTION PROJECTS, MISCELLANEOUS DISCHARGES, AND HABITAT MODIFICATIONS**

The following applies to all over-water or near-water work related to the Project that can impact surface- or ground-water quality. This includes, but is not limited to, construction, operation, and maintenance of fish collection structures, generation turbines, penstocks, hatcheries, transportation facilities, portable toilets, boat ramps, transmission corridors, structures, and staging areas. This also includes emergencies for all activities related to Project operation.

- 1) If water quality exceedances are predicted as being unavoidable during construction or maintenance of a project, a short-term modification must be applied for in writing to Ecology at least three (3) months prior to project initiation. If any project has a long-term impact on a regulated water quality parameter, characterization monitoring must be performed for the impacted parameter(s), and a monitoring plan must be outlined in the Water Quality Protection Plan discussed below. This may require additional management practices to minimize impacts over the license period.
- 2) A Water Quality Protection Plan (WQPP) shall be prepared, and followed for all Project-related work that is in- or near-water that has the potential to impact surface- and/or groundwater quality. The WQPP shall include control measures to prevent contaminants from entering surface water and groundwaters, and shall include, but not be limited to, the following elements:
  - a) A Stormwater Pollution Prevention Plan (SWPPP) shall specify the Best Management Practices (BMPs) and other control measures to prevent contaminants entering the Project's surface water and groundwaters. The SWPPP shall address the pollution control measures for the Licensee's activities that could lead to the discharge of stormwater or other contaminated water from upland areas. The SWPPP must also specify the management of chemicals, hazardous materials and petroleum (spill prevention and containment procedures), including refueling procedures, the measures to take in the event of a spill, and reporting and training requirements.
  - b) An In-Water-Work Protection Plan (IWWPP) shall be consistent with the SWPPP and shall specifically address the BMPs and other control measures for the Licensee activities that require work within surface waters. Turbidity and dissolved oxygen shall be monitored upstream of the location where in-water construction is taking place and at the point of compliance (as defined in WAC

173 201A-110(3)(a-d)) during construction. Samples shall be taken at a minimum of once each day during construction in or adjacent to any water bodies within the Project area that may be affected by the construction. The IWWPP shall include all water quality protection measures consistent with a Hydraulics Project Approval (HPA) for the Project.

- c) The WQPP shall include procedures for monitoring water quality, actions to implement should a water quality exceedance occur, and procedures for reporting any water quality violations to Ecology. The WQPP shall include all water quality protection measures consistent with a HPA for the Project. The WQPP shall be submitted to Ecology for review and approval at least three (3) months prior to Project initiation, and a copy of the WQPP shall be in the possession of the on-site construction manager, and available for review by Ecology staff, whenever construction work is under way.
  - d) When a construction project meets the coverage requirements of the National Pollution Elimination System (NPDES) permit and State Waste Discharge General Permit for Stormwater Discharges associated with construction activity, the Licensee shall either, at Ecology's discretion, apply for this permit and comply with the terms and conditions of the permit or apply for and comply with the terms of an individual NPDES permit.
- 3) Best Management Practices
- a) Work in or near the reservoir, water within the dam, the river, or any wetlands shall include all reasonable measures to minimize the impacts of construction activity on waters of the state. Water quality constituents of particular concern are turbidity, suspended sediment, settleable solids, oil and grease, and pH. These measures include use of Best Management Practices (BMPs) to control erosion and sedimentation, proper use of chemicals, oil and chemical spill prevention and control, and clean-up of surplus construction supplies and other solid wastes.
  - b) During construction, all necessary measures shall be taken to minimize the disturbance of existing riparian, wetland, or upland vegetation.
  - c) All construction debris shall be properly disposed of on land so that the debris cannot enter a waterway or cause water quality degradation to state waters. Retention areas or swales shall be used to prevent discharging of water from construction placement areas.
  - d) The Licensee shall ensure that any fill materials that are placed for the proposed habitat improvements in any waters of the state do not contain toxic materials in toxic amounts.

#### 4) Maintain Turbidity Standards

- a) Certification of this Project does not authorize the Licensee to exceed the turbidity standard beyond the mixing zone described in (b), (c), (d), and (e) below. Turbidity in Class A waters in and below Merwin Dam shall not exceed 5 NTU over background turbidity when turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU. Turbidity in Lake Class waters of Lake Merwin shall not exceed 5 NTU over background turbidity.
- b) For Class A waters, a mixing zone is established, consistent with WAC 173-201A-100(7) and -110(3), within which the turbidity standard is waived. The mixing zone is established to allow only temporary exceedances of the turbidity criteria during and immediately after in-water work. The temporary turbidity mixing zone shall be as follows:
  - i. For waters up to 10 cfs flow at the time of construction, the point of compliance shall be 100 feet downstream from activity causing the turbidity exceedance.
  - ii. For waters above 10 cfs up to 100 cfs flow at the time of construction, the point of compliance shall be 200 feet downstream from activity causing the turbidity exceedance.
  - iii. For waters above 100 cfs flow at the time of construction, the point of compliance shall be 300 feet downstream from activity causing the turbidity exceedance.
- c) For Lake Class waters, certification of this Project does not authorize the Licensee to exceed the turbidity standard beyond the mixing zone described in (d) and (e) below.
- d) Step 1. Mixing zones shall not be allowed unless it can be demonstrated to the satisfaction of Ecology that:
  - i. Other siting, technological, and managerial options that would avoid the need for a lake mixing zone are not reasonably achievable;
  - ii. Overriding considerations of the public interest will be served; and
  - iii. All technological and managerial methods available for pollution reduction and removal that are economically achievable would be implemented prior to discharge
- e) Step 2. Mixing zones, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following:
  - i. Not exceed ten percent of the waterbody volume;
  - ii. Not exceed ten percent of the waterbody surface area (maximum radial

extent of the plume regardless of whether it reaches the surface); and

iii. Not extend beyond fifteen percent of the width of the waterbody.

- 5) The above conditions do not relieve the Licensee from the need to obtain all the applicable permits. Activities that could discharge pollutants to waters of the state must use appropriate Best Management Practices to protect water quality.

#### **4.6 OIL SPILL PREVENTION AND CONTROL**

- 1) No oil, fuel, or chemicals shall be discharged into waters of the state, or onto land with a potential for entry into waters of the state as prohibited by Ch. 90.56 RCW and Ch. 90.48 RCW.
- 2) Contain and remove from the water, visible floating oils released from construction or Project operation.
  - a) In the event of a discharge of oil, fuel or chemicals into state waters, or onto land with a potential for entry into state waters, immediately begin and complete containment and clean-up efforts, taking precedence over normal work. Clean-up shall include proper disposal of any spilled material and used clean-up materials.
  - b) Do not use emulsifiers or dispersants in waters of the state without prior approval from Ecology, Southwest Regional Office.
  - c) Within three (3) months of receiving the license from FERC, establish an Ecology-approved on-site spill cleanup material inventory. Maintain this on-site inventory and a complete inventory list.
  - d) Project Operators shall be familiar with and trained on use of oil spill cleanup materials. In the event of an oil spill, properly dispose of used/contaminated materials and oil and as soon as possible restock new supplies. Include records of proper disposal in the oil consumption records and keep copies of disposal records of contaminated cleanup supplies on-site for inspection.
  - e) Ensure that operational work boats and trained boat operators are available on short notice in the event of a spill. Install mechanisms as appropriate to safely launch or lower work boats into areas where work boats would be deployed in the event of an oil spill. These mechanisms must be pre-approved by Ecology.
  - f) Keep SPCC Plans as required and historical spill records on-site. Provide these to Ecology immediately upon request.
  - g) Identify and map floor drains. Post these maps at the Project in a conspicuous location for use by Operators and other personnel in the event of an oil spill. Seal floor drains that are no-longer needed.

- h) Install, or have on site to deploy stair cases, ladders, etc. which will allow oil spill response staff to safely reach areas that could, in the event of an oil spill, need to be accessed to deploy sorbent pads and boom materials.
- 3) Oil-Water Separators (OWS)
- a) Within three months of issuance of the FERC license, submit a maintenance plan for the OWS to Ecology for approval. This maintenance plan must include a process to periodically test the oil-stop valves and provide assurance that they will work as designed. (See condition 4.8.3 of this Certification-Order under Monitoring and Reporting)
  - b) OWS shall only admit rain and water run-off that originates in the containment area that is intended to drain into the OWS.
  - c) Perform periodic and appropriate maintenance and inspection on a schedule to include sediment removal. (See condition 4.8.3 of this Certification-Order under Monitoring and Reporting)
  - d) Clean and service the OWS after each event where oil is introduced into the OWS.
  - e) Evaluate each oil water separator (OWS) for inflows to account for the total volume of the largest transformer plus fifteen (15) percent. Verify and conduct corrective action that will insure that oil would not be washed through the OWS if a failure of the single largest transformer in the containment area occurs during a major rain event.
- 4) Transformers
- a) Transformer deck containment areas must be impervious. Conduct periodic inspections and resurface areas, fill cracks, caulk metal plate footings or otherwise ensure that containment areas will contain spills from the volume of the largest transformer plus fifteen (15) percent.
  - b) Obtain prior approval from Ecology before breaching containment areas for reasons other than containment area maintenance.
  - c) Conform to industry standards for protecting water quality and preventing and containing oil spills when transporting transformers and transformer oil.
  - d) Snowy or icy conditions require daily inspections of transformer deck containment area including an inspection of the drains leading to the OWS for freeze-up conditions. Remove any observed rain water pooling in the containment areas. (See condition 4.8.3 of this Certification-Order under Monitoring and Reporting)
- 5) Sumps



- a) Maintain oil sensors on the surface of the water in each sump. Inspect and test these sensors every three (3) months or sooner if needed to insure that they will work as designed. Visually inspect all of these areas each week or immediately if oil is suspected to be present such as in the event of an oil sensor alarm or the observance of an oil or grease spill in the turbine pit of sufficient volume to reach the sump. Oil detected in the sumps by visual inspection or by sensor requires immediate cleanup, and oil in an amount that triggers an oil sensor alarm must immediately be report to the Emergency Management Division (EMD). (See condition 4.8.3 of Certification-Order 3678 under Monitoring and Reporting.)
  - b) Immediately repair oil leaks in the turbine pit that are of sufficient volume to reach the sump and that can not be contained by placing a container underneath the leak. Immediately repair water leaks located in the turbine pit area that are leaking at a volume of greater than one gallon per hour.
  - c) Install or deploy hand rails and mechanisms so the sump covers can be removed for a visual inspection of the sump. Provide water-proof lighting in the sumps or spotlights adequate to view the surface water in the sumps. Provide a mechanism to satisfactorily deploy and recover sorbent boom in the sumps at each project.
- 6) Oil, fuel and chemical storage containers, containment areas, and conveyance systems
- a) Provide proper containment around each storage container (including transformers) or around a combination of storage containers as appropriate and agreed upon by Ecology. Proper containment equals the volume of the container plus 10 per cent.
  - b) Recalculate required containment areas to insure proper containment still exists after major equipment changes. Example: when converting from water cooled transformer to an air cooled unit, re-calculate oil volume and compare to containment area. Calculate containment volumes from *maximum* storage volumes, not normal oil level volumes.
  - c) Provide external oil level gauges for governor oil tanks, transformers and other oil tanks that contain over 100-gallons of oil. Provide appropriate level markings for these gauges. Provide a sign or other means at each tank, near the tank level gauge, that describes these level markings and the relationship of each inch vs. how many gallons (in the case of a glass tube type of gauge). Dial gauges must also describe oil volume in gallons or have a sign or other indicator provided at each reservoir that adequately describes dial movement in relation to gallons. Provide a sign or other indication that shows  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and full gauge readings or indications in gallons. If equipment must be placed in a special mode of operation, prior to level observance, this must also be posted.

- Example: wicker gate ram position or other hydraulic ram positions, prior to oil level reading. (See condition 4.8 of this Certification-Order under Monitoring and Reporting)
- d) Regularly check all fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc, for drips and leaks. Maintain and properly store them to prevent spills into state waters. (See condition 4.8.3 of this Certification-Order under Monitoring and Reporting)
  - e) Do not refuel equipment within 50 feet of rivers, creeks, wetlands, or other waters of the state.
  - f) Provide full oil spill containment capacity plus 10 per cent when working on transformers and other equipment that might spill or drip oil.
  - g) Inspect containers once per week. Maintain container inspection sheets to include: maximum container volume and an exact reading recording of the oil level by the staff/operator conducting the inspection. Weekly inspection readings must be consistent; provide training to the staff/operator to ensure consistent and accurate readings. (See condition 4.8.3 of this Certification-Order under Monitoring and Reporting)
  - h) Keep oil consumption records maintained on-site; provide these records to Ecology immediately upon request and in the annual WQMP report.
  - i) In the event that the project modifies the oil transfer operation to include hard-plumbing to reservoirs such as the governor oil tank from the oil tank room, or other extensive modifications, the Licensee must notify and receive approval from Ecology.
  - j) Contain wash water containing oils, grease, or other hazardous materials resulting from wash-down of equipment or working areas for proper disposal, and do not discharge this water into state waters.
- 7) Other
- a) Maintain site security at the project site to reduce chance of oil spills.
  - b) Initiate, plan for, document, and train staff for the deployment of General Response Plan and boom strategies for each project. Review and update as needed annually.

#### **4.7 PESTICIDE APPLICATIONS (SEE DEFINITION OF PESTICIDE IN EXHIBIT B)**

- 1) Prior to the application of pesticides to waters of the state, coverage under applicable Aquatic Pesticides Permit shall be obtained, and conformance with any other applicable state requirement such as SEPA, shall be attained.
- 2) Best Management Practices and other control measures for the application of pesticides to waters of the state must be addressed in an In-Water-Work Protection

Plan. An appropriate water quality monitoring plan shall be developed prior to the application and shall be implemented for all related work.

- 3) Prior to the use of pesticides adjacent to waters of the state, the Licensee shall follow Best Management Practices to avoid the entry of such materials into waters of the state. Applicable Best Management Practices include, but are not limited to, such actions as hand application and avoiding drift of materials into the water.

#### **4.8 MONITORING AND REPORTING**

- 1) The monitoring component of the Licensee's application to FERC is incorporated as a requirement of this Certification-Order and shall be followed except as further modified by this Certification-Order. Within 90 days of issuance of the new FERC license for the Project, the Licensee shall submit to Ecology for its review and approval a plan for any additional monitoring requirements set forth in this Certification-Order.
- 2) Monitoring pursuant to the requirements set forth in this Certification-Order shall begin as soon as practicable and in no event shall monitoring begin any later than one (1) year after issuance of the new FERC license for measures that do not specify a start date.
- 3) Representative water quality measurements shall be made for the parameters listed in Table 2 at the identified locations and frequencies. Further monitoring is required or may be required under compliance schedules or to respond to specific problems not identified at the time of this Certification-Order.

**Table 2. Water Quality Monitoring Schedule**

Parameter	Location	Depths (ft)	Frequency	Duration	Condition No.
Flow	Lewis River below Merwin Dam at USGS Ariel gauge	--	15 minutes	Ongoing for the term of the license	4.2.1 Flow
	Merwin Dam spill gates	Calculated using elevation of Lake Merwin times gate widths times gate heights	Every change in gate openings when spill occurs	Ongoing for the term of the license	4.2.2 Flow
Total Dissolved Gas (TDG)	Merwin Dam turbine outlets	15'	Hourly	1. One month before and after planned departure from normal operations reallocate the duration or the quantity of air injected into the turbines to the point that the 110% criterion is likely exceeded. 2. Ongoing if exceedances occur until three months after such exceedances are corrected.	4.3.2a
	Merwin spill downriver of aeration zone	~10'-15'	During spill events through the spillway, hourly, as close to 24 hrs before as possible to 48 after the event	Ongoing unless TDG during spill is found not to exceed 110% during river flows approaching 33,884 cfs	4.3.3a and Exhibit C
Temperature	Merwin Forebay	1, 5, 10, 20 40, 60, 100, 200	May 1–Oct 31: Hourly	Ongoing until temperature exceedances are found not to occur in the Merwin tailrace for a period of five consecutive years	4.4.5
	Merwin tailrace	1	Hourly all year	Ongoing	4.4.5

	Upper Merwin/ Yale tailrace	Profile	Hourly	Ongoing until temperature fluctuations in the upper Lake Merwin/Yale tailrace are sufficiently addressed per condition 4.4(3) of this Order	4.4.5
Dissolved Oxygen	Merwin tailrace	1	September and October hourly	Ongoing until dissolved oxygen sags are found not to exceed 8 m/L for a period of 5 consecutive years	4.4.5
Oil & Grease	Record amounts of oil, grease and hydraulic fluids used	n/a	Weekly	Ongoing for the term of the license	4.6.6h
	Sumps	Surface and bottom	At least weekly (visual) At least three months (test)	Ongoing for the term of the license	4.6.5a
	Transformer deck	Drains	Daily during icy conditions	Ongoing for the term of the license	4.6.4d
	Oil tanks, transformers, other oil tanks >100 gallons	n/a	At least weekly	Ongoing for the term of the license	4.6.6c
	Fuel hoses, oil drums, oil & fuel transfer valves and fittings.	n/a	Weekly	Ongoing for the term of the license	4.6.6d
	Oil-water separators	n/a	Periodically test oil stop valves	Ongoing for the term of the license	4.6.3a
	Oil-water separators	n/a	Regularly prior to cleaning	Ongoing for the term of the license	4.6.3c

- 4) All water quality monitoring shall meet accepted standards for data quality. The monitoring plan shall include monitoring and data evaluation procedures and objectives that ensure data quality. Data quality procedures shall be consistent with United States Environmental Protection Agency and Ecology guidance on this subject.

- 5) The monitoring plan shall be updated annually by amendment to reflect any changes in monitoring parameters, schedule, or methodology. These amendments, or a notification of no change, shall be included in the Annual Report described below in condition 4.8.6 and in Section 14.2.6 of the Settlement Agreement. Ecology will provide its revisions and approval for the monitoring plan within three (3) months after receipt of an amendment or notification.
- 6) Data from all water quality monitoring shall be summarized and reported in a format approved by Ecology and submitted annually. The monitoring report shall include sample dates, times, locations, and results. Any violation of numeric state water quality standards and flow conditions shall be highlighted. The report shall be included in the Annual Report provided to FERC as described in Section 14.2.6 of the Settlement Agreement; provided that if Ecology determines that the format of that report does not meet Ecology's needs, the Licensee shall modify or supplement the report so that it is acceptable to Ecology. Data reports shall be submitted to Ecology's, Water Quality Program, Southwest Regional Office.
- 7) The Licensee may request to modify or eliminate parts of the monitoring program after a minimum of the ongoing monitoring requirements or a period of five (5) years of reliable data collection following issuance of the new license. Modifications to this monitoring schedule can be requested by submitting to Ecology reasons for the modifications along with a modified monitoring plan.
- 8) A more rigorous water quality sampling program for the parameters listed in Table 2 or additional parameters may be required by Ecology if necessary to protect water quality in the future based on monitoring results, regulatory changes, changes in project operations and/or requirements of TMDLs, or to otherwise provide reasonable assurance of compliance with state water quality standards.

## Exhibit A

### Section 6.2 of the Settlement Agreement Concerning Relicensing of the Lewis River Hydroelectric Projects signed November 30, 2005

#### 6.2 Flow Fluctuations Below Merwin Dam.

Commencing upon Issuance of the New License for the Merwin Project, PacifiCorp shall implement the following operational regimes at Merwin Dam for the duration of the New License for the Merwin Project.

##### 6.2.1 Ramping Rates Below Merwin Dam.

All flow rates and Ramping rates described in this Section 6.2.1 shall be measured at the Ariel gage. "Ramping" means those Project-induced increases ("up-Ramping") and decreases ("down-Ramping") in river discharge and associated changes in river surface elevation over time below Merwin Dam caused by Project operations or for Project maintenance. Ramping rate is the rate of change in stage resulting in regulated discharges. Ramping rates in this Agreement are stated in inches or feet of change in the surface elevation of the river per hour. Restrictions on Ramping shall not apply to

(a) changes in flows due to natural increases or decreases in tributary input or surface runoff occurring entirely in the reach between Merwin Dam and the Ariel gage (such as changes caused by snowmelt or rain events), (b) PacifiCorp's operations to comply with high runoff procedures, or (c) PacifiCorp's response to emergency conditions related to an imminent threat to life or property. PacifiCorp shall limit the up-Ramping rate to 1.5 feet per hour below Merwin Dam for all periods when flows below Merwin Dam are at or less than hydraulic capacity of the Merwin Project turbines. PacifiCorp shall limit the down-Ramping rate to 2 inches per hour below Merwin Dam for all periods when flows below Merwin Dam are at or less than 8,000 cfs; except that during the period from February 16 through June 15, no down-Ramping shall occur (1) commencing one hour before sunrise until one hour after sunrise and (2) commencing one hour before sunset until one hour after sunset. PacifiCorp shall perform down-Ramping as gradually as practicable and shall avoid up-Ramping fluctuations during down-Ramping periods, to the extent practicable.

##### 6.2.2 Plateau Operations at Merwin Dam.

PacifiCorp shall further restrict daily fluctuation in flows below Merwin during the period of February 16 through August 15 of each year by maintaining flow plateaus (periods of near-steady discharge) as provided in this Section 6.2.2. Once a flow plateau

is established, PacifiCorp shall maintain the flow plateau for as long a duration as practicable, but flow plateaus may be altered to a new level as a result of changes in natural flow or operational demands on the Lewis River power system, subject to the limitations of this Section 6.2.2. If any Party questions the duration of flow plateaus, they may request a meeting with appropriate PacifiCorp staff to review the information PacifiCorp used in determining when Plateau Steps were required. PacifiCorp shall cooperate in providing necessary information about and explanation of the actions taken. PacifiCorp shall limit changes in flow plateaus during the period of February 16 through August 15 as provided in (a) and (b) below:

a. Plateau Steps. For the purposes of this Agreement, a "Plateau Step" shall be defined to be down-Ramping in flow below Merwin that would result in a change in river elevation of more than 0.2 (2/10) foot at the Ariel gage. A single Plateau Step event will begin when the elevation drops by more than 0.2 (2/10) foot and be deemed complete when (i) the elevation rises by more than 0.2 (2/10) foot or (ii) does not change by more than plus or minus 0.2 (2/10) foot for more than 6 hours. Down-Ramping that results in changes in river elevation of less than or equal to 0.2 (2/10) foot shall not be considered a Plateau Step and will not be included in the accumulated total of Plateau Steps, provided that down-Ramping that results in a change of more than 0.2 (2/10) foot in any six-hour period will be considered a Plateau Step. Plateau Steps shall be limited to no more than one change in any 24-hour period, no more than 4 in any seven-day period, and no more than six in any calendar month. If PacifiCorp is required to release flows from Merwin Dam pursuant to the high runoff procedure, then for each such release pursuant to the high runoff procedure, down-Ramping to return to a level maintained for more than 6 hours without decreasing river elevation by more than 0.2 (2/10) feet shall not be counted as a Plateau Step. During flood season, if there is less than 5 feet of storage capacity in addition to the required 17 feet of storage capacity under the high runoff procedure, then the first down-Ramping after each flow release to restore the storage capacity shall not count as a Plateau Step. If PacifiCorp uses more than a single release episode to reach or exceed 22 feet of storage capacity, only the down-Ramping after the first such release shall not count as a Plateau Step; the subsequent down-Rampings shall be counted as Plateau Steps. Finally, if PacifiCorp is asked to lower flows below Merwin Dam for public safety reasons or to facilitate aquatics studies, such changes in river level shall not be counted as Plateau Steps.

b. Plateau Changes. An accumulation of Plateau Steps will result in a "Plateau Change" as further defined in this Section. PacifiCorp shall limit Plateau Changes to no more than 20 during the period February 16 through August 15. When flows are greater than or equal to 3,500 cfs below Merwin Dam, a Plateau Change shall occur when any series of consecutive Plateau Steps totals 1 foot of down-Ramping



between February 16 through August 15. Any periods of up-Ramping during such period shall be ignored in such calculations. When flows are less than 3,500 cfs below Merwin Dam, a Plateau Change shall mean a series of consecutive Plateau Steps, during the period February 16 through August 15, totaling 0.5 (5/10) foot. Any periods of up-Ramping during such period shall be ignored in such calculations. If a single Plateau Step in a series would cause the total to exceed one foot (when flows are greater than or equal to 3,500 cfs) or one-half foot (when flows are less than 3,500 cfs), the excess shall be counted toward the next Plateau Changes. If a Plateau Step begins when flows are greater than 3,500 cfs and ends when flows are less than 3,500 cfs, the Plateau Change will be determined by adding the fractions of a Plateau Change occurring before and after the river discharge below Merwin Dam passes 3,500 cfs. For example, if a Plateau Step begins when flows are at 5,000 cfs and has measured 6 inches when flows reach 3,500 cfs (one-half of a Plateau Change for flows above 3,500 cfs) and continues to decline an additional 3 inches ending at 3,000 cfs (one-half of a Plateau Change for flows below 3,500 cfs), it would count as one full Plateau Change.

### **6.2.3 Stranding Study and Habitat Evaluation.**

By the third anniversary of the Issuance of the New License for the Merwin Project, PacifiCorp shall complete a stranding study and a habitat evaluation study below Merwin Dam to assess the potential effects of Project operations on steelhead, coho salmon, Chinook salmon, and chum salmon, and their habitats. The total cost to complete both the study and evaluation is estimated to be \$300,000. PacifiCorp shall develop the stranding study objectives in Consultation with the ACC, with final approval by NOAA Fisheries and USFWS. The stranding study shall identify measurable factors affecting potential stranding, the relationship of such factors to each other, and the timeframe and season within which stranding may occur. The habitat evaluation study shall evaluate spawning and rearing habitat from Merwin Dam to the downstream end of Eagle Island across a range of minimum flow operational conditions. The design of the study and evaluations shall be limited to the objectives developed above, must be operationally implementable, and any operational changes implemented for the study and evaluation shall not be considered a breach of any other operational restrictions provided in this Agreement, e.g., shall not be considered a Plateau Change under Section 6.2.2. Based upon the results of the study and evaluation, the ACC may recommend to PacifiCorp, subject to the approval of NOAA Fisheries and USFWS, measures to minimize or mitigate stranding of salmonids below Merwin Dam. Such measures may include minor adjustments to instream flow levels, or minor adjustments to Merwin Project operations to address Project impacts below Merwin Dam. PacifiCorp shall consider any suggested adjustments to operations and flows of the Project, and shall make reasonable, good faith efforts to address such recommendations. In so doing, PacifiCorp should consider impacts on operational benefits of the Project, including, but not limited to, flood

management, power generation, and recreational uses. If PacifiCorp determines not to implement the recommendations, because there would be significant impact on Project benefits, the ACC may elect to mitigate the impacts shown by the study and evaluation by development of habitat enhancement projects through the use of the Aquatics Fund.

#### **6.2.4 Minimum Flows Below Merwin Dam.**

PacifiCorp shall provide the following minimum flows below Merwin Dam during the following time periods, subject to the limitations and requirements provided in Section 6.2.5: (1) July 31 through October 15, 1,200 cfs; (2) October 16 through October 31, 2,500 cfs; (3) November 1 through December 15, 4,200 cfs; (4) December 16 through March 1, 2,000 cfs; (5) March 2 through March 15, 2,200 cfs; (6) March 16 through March 30, 2,500 cfs; (7) March 31 through June 30, 2,700 cfs; (8) July 1 through July 10, 2,300 cfs; (9) July 11 through July 20, 1,900 cfs; and (10) July 21 through July 30, 1,500 cfs. The above flows and timing were designed for the purpose of the maintaining and enhancing species downstream of Merwin Dam, including native fall Chinook. The preceding sentence shall not modify or be used to modify the obligations stated in this Section 6.2.4.

#### **6.2.5 Low Flow Procedures.**

During years when PacifiCorp projects that sufficient water will not be available to appropriately balance the respective needs of fishery resources, recreation, flood management, and power production, PacifiCorp shall convene a Flow Coordination Committee (the "FCC") consisting of representatives from PacifiCorp, NOAA Fisheries, USFWS, WDFW, the CIT, and the Yakama Nation. PacifiCorp shall provide the FCC with relevant information, and the FCC shall independently evaluate available data regarding water availability during the projected low flow period and decrease or maintain the minimum flows levels provided in Section 6.2.4 as it deems appropriate. PacifiCorp shall maintain minimum flow levels provided in Section 6.2.4 unless such levels are temporarily decreased by Consensus of the FCC members; provided that if there is an impasse, determinations shall be made by a majority of the agency members of the FCC. Changes requested by the FCC shall not require PacifiCorp to violate its agreement with FEMA concerning high runoff management, as described in Section 12. The FCC shall consider the following interests in modifying minimum flow levels (the order of listing is not intended to indicate priority): (1) the needs of fish species, with a priority on ESA-listed species, including, without limitation, consideration for keeping redds watered, providing rearing habitat for wild fall Chinook, and pulse flows to assist in migration of juvenile fish if such pulse flows are shown to be effective; (2) the need to provide flood management benefits for down river areas; and (3) the desire to refill all Project reservoirs to achieve a combined target of 5 feet of available reservoir storage capacity by July 1, and a target of 15 feet of reservoir storage by Labor Day (to provide

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reasonable recreation uses between Memorial Day and Labor Day). The Counties and cities that are signatories to this Agreement may designate a local government liaison to the FCC. The liaison's purpose is to encourage communication between the FCC and local governments. PacifiCorp shall notify the local governments' liaison (a) when the FCC will be convened and (b) the general content of the agenda. The liaison may provide written comments to the FCC for its consideration.

## Exhibit B

### Definitions

**7Q-10** – The high flow that is calculated to occur only once, for 7 consecutive days during any 10-year period.

**BMPs** – Best Management Practices to reduce pollution

**CWQPP** – Construction Water Quality Protection Plan – necessary for all construction projects in, over, or near water.

**FERC** – Federal Energy Regulatory Commission

**FWPCA** – Federal Water Pollution Control Act

**HPA** – Hydraulic Project Approval

**IWPP** – In Water Work Protection Plan. Part of the CWQPP as described above. This is for work in the water—such as boat ramps or cement work in the water. This does not apply inside the dam when before beginning the project, the water can be completely removed.

**MSL** – Mean Sea Level

**NTU** – Nephelometric Turbidity Units

**Pesticide** –

a) Any substance or mixture of substances intended to prevent, destroy, control, repel, or mitigate any insect, rodent, snail, slug, fungus, weed, and any other form of plant or animal life or virus, except virus on or in a living person or other animal which is normally considered to be a pest or which the director may declare to be a pest;

b) Any substance or mixture of substances intended to be used as a plant regulator, defoliant or desiccant; and

c) Any spray adjuvant, such as a wetting agent, spreading agent, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent with or without toxic properties of its own intended to be used with any pesticide as an aid to the application or effect thereof, and sold in a package or container separate from that of the pesticide with which it is to be used. **RCW** – Revised Code of Washington

**RM** – River Mile

**SWPPP** – Stormwater Pollution Prevention Plan –Part of the CWQPP as described above. This is to prevent polluted stormwater from entering the reservoir or river.

**TDG** – Total Dissolved Gas

**TMDL** – Total Maximum Daily Load

**TWQAP** – Temperature Water Quality Attainment Plan

**USC** – United States Code

**USDA-FS** - Forest Service of the United States Department of Agriculture

**USGS** – United States Geological Survey

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**USFWS** - United States Fish and Wildlife Service

**WAC** – Washington Administration Code

**WDFW** – Washington Department of Fish and Wildlife

**WQAP** – Water Quality Attainment Plan

**WQMP** – Water Quality Monitoring Plan

**WQS** – Water Quality Standards Rule, WAC 173 201A.

## Exhibit C

### Total Dissolved Gas Spill Monitoring Plan for Swift No 1, Yale, and Merwin Dams

This plan includes:

1. A quality assurance/quality control (QA/QC) plan;
2. A description of how spill events (including 7Q-10 events) will be anticipated;
3. A description of how equipment will be mobilized quickly prior to a spill event and timing of monitoring frequency and duration;
4. Location of monitoring equipment; and,
5. Reporting deadline.

#### 1) Quality Assurance/Quality Control

##### Data Quality Objectives and Decision Criteria

Total Dissolved Gas meters can exhibit biased results depending on calibration, maintenance and/or field conditions. PacifiCorp staff will minimize bias by assuring proper maintenance and care of the TDG meters. Therefore, no Data Quality Objectives (DQOs) are being established.

TDG readings are expected to fall between 100% and 130% saturation. Washington State standard is 110% saturation. Measurement Quality Objectives (MQOs) are equivalent to DQOs and are equal to 1% saturation. MQOs will be met if the TDG meter readings are within 1 percent saturation or 5 mm HG of the expected value based on comparison to paired meters. If MQOs are not met for these pairs, the differences between paired data will be evaluated, including differences in the data quality procedures used, but the data will not be qualified or discarded unless other information indicates problems with the data.

Percent TDG measurements are dependent on barometric pressure readings, so secondary MQOs are also needed for the on-site barometric pressure readings. There are two weather stations at Yale and Swift so it is possible to obtain direct measurements of barometric pressure at those locations. A portable barometer will be employed at Merwin. The target for this monitoring effort will be an MQO of 5 mm HG for the field barometer readings. If the barometric pressure MQOs are exceeded, the data will be considered acceptable if the TDG percent saturation MQOs are met.

Temperature will also be collected during the monitoring periods. Since temperature is of secondary importance, DQOs will not be established but an MQO will be established to determine if data are acceptable for reporting. The MQO for temperature will be met and reported if post-calibration shows that the temperature is within 0.5 ° C.

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In terms of data quality the following acceptance criteria will be applied:

Data Reasonableness: Data will be reviewed to determine if the amount of variability is appropriate, based on expected values and comparison between data sets. Data with too much or reasonably too little variability will not be used.

Data Completeness: Data sets will be used that are reasonably complete during the period of sampling. Incomplete data sets will be used if they are considered representative of conditions during the sampling period.

Data Representation: Data will be used that are representative of the location or time period for sampling. Attention will be paid to the variations in meteorological conditions and to seasonal differences between high and low flow conditions.

Study Design and Field Procedures: All data will be collected using Hydrolab® Model MS5 remote TDG meters. Prior to deployment, instruments will be calibrated to ensure that total pressure (in air) equals barometric pressure. Meters will be attached to a streamside structure such as the Ariel USGS gage house below Merwin and existing cabling, or a large rock or tree below Yale and Swift No. 1. The meters will be weighted such that they will maintain position in at least 10 feet of water (compensation depth) to prevent air bubble formation on the sensor membranes.

The Hydrolab® Model MS5 remote TDG meters will be checked for calibration before and after each deployment. Meters will be checked for performance at each site at the beginning and the end of each deployment.

Data Review, Quality Assessment, and Validation: Data will be downloaded from the Hydrolab® Model MS5 remote TDG meters to a spreadsheet and reviewed for reasonableness and any values exceeding the MQOs. Outliers will be evaluated for reasons behind unexpected deviation. Exceedances related to equipment malfunction result in rejection of the data.

Data sets will be considered complete if the data meet the MQOs at least 85 percent of the time. All data meeting MQOs will be accepted. Data will then be evaluated for compliance and acceptance criteria.

## **2) How spill events will be anticipated including 7Q-10 events**

PacifiCorp Energy will use prediction tools described below to determine when to deploy TDG meters for any anticipated spill event.

The following is a description of how PacifiCorp Energy anticipates spill events, including 7Q-10 events, at Merwin Dam, Yale Dam and Swift No. 1 Dam. PacifiCorp Energy regularly monitors weather and inflow forecasts from the National Weather Service and River Forecast Center as well as a number of private forecasting vendors. Based on expected inflows and current reservoir elevations, PacifiCorp Energy will target

total Project releases, typically 2 to 3 days in advance, so as to minimize the frequency and magnitude of Project spill. Since the Lewis River Project has a large amount of storage compared to typical inflow, PacifiCorp Energy is often able to manage and regulate natural high flow events so as not to spill at the Projects thereby saving water for such purposes as generation, fishery needs and refill. PacifiCorp Energy has real time reservoir elevation indication in each of its three reservoirs. With this data, total available Project storage is calculated on an hourly basis and made available to staff involved in Project operations. Reservoir elevations, available storage, and inflow forecasts are routinely monitored by Hydro Control Operators as well as technical water management staff. This information is scrutinized carefully particularly during actual and potential high run off situations.

During the high run off season (November 1 - April 1) PacifiCorp Energy is required to maintain an aggregate of at least 70,000 AF of storage in the Lewis River reservoirs. If there is a reasonable threat of encroaching on this storage, PacifiCorp Energy typically spills at Merwin dam as necessary to manage the available flood control storage. The rate at which inflow encroaches on required available storage is updated using existing Project telemetry and inflow forecasts provided by NOAA's National Weather Service River Forecast Center, and/or a third party consultant. Telemetered inflow and reservoir instrumentation currently includes:

- PacifiCorp Energy and USGS stream gages on the river mainstem and tributaries
- PacifiCorp Energy lake stage gages
- PacifiCorp Energy and National Weather Service weather stations
- PacifiCorp Energy and Natural Resource Conservation Service snow stations

Some spill events are not driven by high flow events, and these are typically planned with enough time to provide ample opportunity for the installation of monitoring equipment. Examples include spilling for required periodic testing of the spill gates as well as meeting some special water management needs, including minimum flow requirements, when the generation units are out of service.

Rainfall is but one factor considered in forecasting inflows. Other factors include air temperature (which will affect whether precipitation falls as rain or snow and at what elevations), wind, soil moisture and snowpack conditions. PacifiCorp Energy relies on the output of complex weather and streamflow models, typically managed by National Weather Service and third party consultants to assimilate these conditions as well as forecasted weather to predict streamflows, including 7Q-10 events.

### **3) Deployment, Timing of Monitoring, Frequency, and Duration**

PacifiCorp Energy staff will have meters and deployment equipment at the ready at all times. A test deployment will take place at each site prior to the high run off season. During the high run off season (November 1 - April 1) staff will be on alert to be



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prepared to deploy at any time. The MS5 meters will be programmed to record TDG and temperature on an hourly schedule. Meters will be deployed at approximately 24 hours before a spill event and continuing for 48 hours afterward. While the meters will be removed following spill events/periods, PacifiCorp Energy staff will be ready to deploy equipment as many times as needed to capture each event. Threat of vandalism or theft, and unwillingness to risk data loss drives the decision to remove equipment after each spill event.

#### **4) Location of monitoring equipment**

Three meters will be deployed in spill water at the following locations:

- Approximately ¼ mile downstream of Merwin dam near the Ariel gage site;
- Approximately ½ mile downstream of Yale dam and upstream of the confluence with Canyon Creek; and,
- Approximately ½ mile downstream of Swift No.1 dam.

Placement will be far enough downstream of the dams to be outside the aeration area below each spillway in order to avoid air bubble accumulation on the sensing membrane.

#### **5) Reporting**

Summary output of the streamflow forecast models, as well as inflow records, will be included in PacifiCorp Energy reports identifying and justifying periods of 7Q-10 exemptions identified in section 4.3.5.f. Likewise when Federal Energy Regulatory Commission license conditions or other safety and environmental requirements require spill not otherwise explicitly included in 7Q-10 exemptions, PacifiCorp Energy will document and report those events, including the basis of the operation. As called for in the Lewis River Settlement Agreement (Section 14.2.6), annual reporting of spill events and data analysis will be included in PacifiCorp Energy and Cowlitz PUD's Annual Aquatics Coordination Committee Report.

## **APPENDIX B**

### **Modified Fishway Prescriptions filed by the Department of Commerce under Section 18 of the Federal Power Act for the Merwin Project No. 935**

February 14, 2006

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 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 design, 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 ATE 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 Melvin 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 Licensees 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

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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

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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.

## APPENDIX C

### **Fishway Prescriptions filed by the Department of the Interior under Section 18 of the Federal Power Act for the Merwin Project No. 935**

February 22, 2006

(For convenience and clarity, these prescriptions are numbered to match the numbers contained in the applicants revised draft license articles filed with the Commission on January 6, 2006)

## **2 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.

### **3 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.

### **4 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' 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) For bull trout, the Licensee shall make Facility Adjustments or Facility Modifications to downstream passage facilities as follows:

(1) If the survival of bull trout is less than 99.5% and is greater than or equal to 98%, or Injuries caused by downstream collection and transport are greater than 2% but less than 4%, the Licensee shall make Facility Adjustments directed by USFWS to achieve the performance standard or standards that are not being met, but shall not be required to make Facility Modifications; or

(2) If the survival of bull trout is less than 98%, or Injuries caused by downstream collection and transport are greater than or equal to 4%, the Licensee shall make the Facility Modifications directed by USFWS to achieve the performance standard or standards that are not being met; provided that if USFWS determines that a Facility Adjustment will likely achieve the performance standard or standards that are not being met, then the Licensees shall make Facility Adjustments as directed by USFWS.

(d) For Transported Species, if UPS and/or ATE 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.

## **5 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.

## **6 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.

## **7 Upstream Transport After Full Adult Fish Passage**

On or before the 13<sup>th</sup> 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, 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 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 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 and Swift No. 2 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.

## **8 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, 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.

### **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 Licensee shall provide for the transport of any bull trout collected below Merwin Dam to Yale Lake unless otherwise directed by the USFWS.

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.

#### **10 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 and with the final approval of NOAA Fisheries, 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.

## **11 Downstream Passage at Merwin Dam**

On or before the 17<sup>th</sup> 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 13<sup>th</sup> 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.

## **12 Bull Trout Entrainment Reduction**

Unless already completed, the Licensee shall design and implement a study to evaluate bull trout entrainment reduction methods in Consultation with the ACC (including at least the USFWS). Potential entrainment reduction methods include installation of exclusion devices, such as strobe lights, and installation of barrier nets with submersible cork lines and designed to accommodate a Merwin-type floating trap. Due to the small numbers of bull trout in Yale Lake and Lake Merwin, any evaluation of strobe lights shall be performed in Swift Reservoir. Upon the request of the USFWS, the Licensee shall, in



Consultation with the ACC and subject to the approval of the USFWS, develop criteria to determine when entrainment reduction measures similar to those implemented at the Yale project as provided in the license for the Yale project (P-2111) should be implemented at Merwin Dam. The Licensee shall submit the criteria to the Commission for approval after obtaining approval by the USFWS subject to Section 15.14 of the Settlement Agreement, within 12 months after the USFWS request for criteria. Once approved by the Commission, if and when such criteria are met, the Licensee shall commence the entrainment reduction measures, and shall maintain such measures until commencing operation of the Merwin Downstream Facility.

### **13 Downstream Bull Trout Facilities**

If, pursuant to Section 4.1.9 of the Settlement Agreement, the Licensee does not build the Merwin Downstream Facility, then when the Service determines that bull trout populations have increased sufficiently in Lake Merwin, but not sooner than the 17<sup>th</sup> anniversary of the Issuance of this License, the Licensee shall construct and provide for the operation of a passage facility similar to the Yale Downstream Bull Trout Facility at Merwin Dam (Merwin Downstream Bull Trout Facility).

The Merwin Downstream Bull Trout Facility shall be similar in magnitude and scale to modular floating Merwin-type collectors and are not intended to be passage facilities of the same magnitude and expense as the Merwin Downstream Facility. The Licensee shall provide for monitoring of performance as provided in the Monitoring and Evaluation Plan (M&E Plan) described in Section 9 of the Settlement Agreement, and make necessary and appropriate Facility Adjustments and Facility Modifications to the Merwin Downstream Bull Trout Facility, in Consultation with the ACC (including at least the USFWS) and with approval of the USFWS, subject to Section 15.14 of the Settlement Agreement, to achieve relevant performance standards, provided that such modifications shall not require installation of a different type of passage facility. The Licensee shall provide preliminary (30%) designs to the ACC for the Merwin Downstream Bull Trout Facility within 12 months after a determination by USFWS and NOAA Fisheries under Section 4.1.9 of the Settlement Agreement. The Licensee shall follow the provisions in Sections 4.1.1 through 4.1.3 of the Settlement Agreement, when developing designs for the facilities. The Licensee shall submit final designs to the Commission upon approval by USFWS, subject to 15.14 of the Settlement Agreement, but not later than 60 days after submission of the final design to USFWS.

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#### **14 Obligation to Consult**

Notwithstanding any other provision of these prescriptions for Fishways, 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 Fishway prescriptions 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.

#### **15 Dispute Resolution**

In implementing these prescriptions for Fishways, 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.

**APPENDIX D****Terms and Conditions included in the National Marine Fisheries Service's  
Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects:  
Merwin (No. 935), Yale (No. 2071), Swift No. 1 (No. 2111),  
and Swift No. 2 (No. 2213)**

August 27, 2007

**9.3.1 Terms and Conditions**

To be exempt from the prohibitions of Section 9 of the ESA, FERC must fully comply with conservation measures described as part of the Proposed Action and the following terms and conditions that complete the reasonable and prudent measures (RPMs) described above. In order to be exempt from the take prohibitions of Section 9 of the ESA and regulations issued pursuant to Section 4(d) of the ESA, FERC must include in the licenses and PacifiCorp and Cowlitz PUD must implement the following terms and conditions, which implement the RPMs listed above. These terms and conditions are non-discretionary. NMFS may amend the provisions of this ITS consistent with its statutory and regulatory authorities.

- 1) All Settlement Agreement provisions that relate to anadromous fish (including, but not limited to, provisions related to passage, provisions that affect habitat conditions (e.g., flows) or provisions related to monitoring) for these Projects must be followed by PacifiCorp and Cowlitz PUD and enforced by FERC. This applies to those Settlement Agreement articles that relate to salmon, their habitat, and implementation of those measures including adaptive management. Some key provisions include, but are not limited to:

Settlement Agreement:

Section 3: Anadromous Fish Reintroduction Outcome Goals

Section 4: Fish Passage Measures,

Section 6: Flow Releases for Fish and Other Aquatic Species,

Section 7: Aquatic Habitat Enhancement Actions,

Section 8: Hatchery and Supplementation Program, and

Section 9: Aquatic Monitoring and Evaluation.

- 2) In all proposed actions involving construction in or near waterways, FERC must require PacifiCorp and Cowlitz PUD to follow the construction best management practices described below to control sediment, disturbance, and other potential detrimental effects to listed salmonids.
  - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.

- b. Alteration or disturbance of the streambanks and existing riparian vegetation will be minimized to the greatest extent possible.
- c. No herbicide application should occur as part of this action. Mechanical removal of undesired vegetation and root nodes is permitted.
- d. All existing vegetation within 150 ft of the edge of bank should be retained to the greatest extent possible.
- e. Timing of inwater work. Work below the bankfull elevation will be completed during the State of Washington's or the Corps' preferred inwater work period as appropriate for the project area, unless otherwise approved in writing by NMFS.
- f. Cessation of work. Construction project activities will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage. All materials, equipment, and fuel must be removed if flooding of the area is expected to occur within 24 hours.
- g. Fish screens. All water intakes used for a construction project, including pumps used to isolate an inwater work area, will have a fish screen installed, operated, and maintained according to NMFS' fish screen criteria.
- h. Fish passage. Passage must be provided for any adult or juvenile salmonid species present in the Project area during construction, unless otherwise approved in writing by NMFS, and maintained after construction for the life of the Project. Passage will be designed in accordance with NMFS' "Anadromous Salmonid Passage Facility Guidelines and Criteria" (2004) (ATTACHMENT 1). Upstream passage is required during construction if it previously existed.
- i. Construction activities associated with habitat enhancement and erosion control measures must meet or exceed best management practices and other performance standards contained in the applicable state and Federal permits.
- j. Pollution and Erosion Control Plan. Prepare, in consultation with NMFS, and carry out a Pollution and Erosion Control Plan to prevent pollution caused by survey, construction, operation, and maintenance activities. The Plan will be available for inspection upon request by FERC or NMFS.
  - i. Plan Contents. The Pollution and Erosion Control Plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

1. The name and address of the party(s) responsible for accomplishment of the Pollution and Erosion Control Plan.
  2. Practices to prevent erosion and sedimentation associated with access roads, decommissioned roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, and staging areas.
  3. Practices to confine, remove, and dispose of excess concrete, cement, and other mortars or bonding agents, including measures for washout facilities.
  4. A description of any regulated or hazardous products or materials that will be used for the Project, including procedures for inventory, storage, handling, and monitoring.
  5. A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.
  6. Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
  7. Erosion control materials (e.g., silt fence, straw bales, aggregate) in excess of those installed must be available on site for immediate use during emergency erosion control needs.
  8. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work exceeding 7 days.
- ii. Inspection of erosion controls. During construction, the operator must monitor instream turbidity and inspect all erosion controls daily, or as required by Washington Department of Ecology's Construction stormwater general permit, or as determined by NMFS at the time of construction.
1. If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.
  2. Remove sediment from erosion controls once it has reached one-third of the exposed height of the control.
- k. Construction discharge water. Treat all discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows:
- i. Water quality. Design, build, and maintain facilities to collect and treat all construction discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.
  - ii. Discharge velocity. If construction discharge water is released using an

- outfall or diffuser port, velocities will not exceed 4 fps, and the maximum size of any aperture will not exceed 4 fps.
- iii. Spawning areas, submerged estuarine vegetation. Do not release construction discharge water within 300 ft upstream of spawning areas or areas with submerged estuarine vegetation. Clean construction discharge may be released.
  - iv. Pollutants. Do not allow pollutants, including green concrete, contaminated water, silt, welding slag, or sandblasting abrasive to contact any wetland or the 2-year floodplain, except cement or grout when abandoning a drill boring or installing instrumentation in the boring.
1. During completion of habitat enhancement activities, no pollutants of any kind (sewage, waste spoils, petroleum products, etc.) should come in contact with the water body or wetlands nor their substrate below the mean high-high water elevation or 10-year flood elevation, whichever is greater.
- m. Treated wood.
    - i. Projects using treated wood that may contact flowing water or that will be placed over water where it will be exposed to mechanical abrasion or where leachate may enter flowing water will not be used, except for pilings installed following NMFS' guidelines.
    - ii. Projects that require removal of treated wood will use the following precautions:
      1. Treated wood debris. Use the containment necessary to prevent treated wood debris from falling into the water. If treated wood debris does fall into the water, remove it immediately.
      2. Disposal of treated wood debris. Dispose of all treated wood debris removed during a project, including treated wood pilings, at an upland facility approved for hazardous materials of this classification. Do not leave treated wood pilings in the water or stacked on the streambank.
  - n. Preconstruction activity. Complete the following actions before significant alteration of the Project area:
    - i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary. Construction activity or movement of equipment into existing vegetated areas must not begin until clearing limits are marked.
    - ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are on site: A supply of sediment control materials (e.g., silt fence, straw bales), and an oil-absorbing, floating boom whenever surface water is present.

- iii. Temporary erosion controls. All temporary erosion controls will be in place and appropriately installed downslope of project activity within the riparian buffer area until site rehabilitation is complete.
- o. Temporary access roads.
  - i. Steep slopes. Do not build temporary roads mid-slope or on slopes steeper than 30 percent.
  - ii. Minimizing soil disturbance and compaction. Low-impact, tracked drills will be walked to a survey site without the need for an access road. Minimize soil disturbance and compaction for other types of access whenever a new temporary road is necessary within 150 ft of a stream, water body, or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NMFS.
  - iii. Temporary stream crossings.
    - 1. Do not allow equipment in the flowing water portion of the stream channel where equipment activity could release sediment downstream, except at designated stream crossings.
    - 2. Minimize the number of temporary stream crossings.
    - 3. Design new temporary stream crossings as follows:
      - a) Survey and map any potential spawning habitat within 300 ft downstream of a proposed crossing.
      - b) Do not place stream crossings at known or suspected spawning areas, or within 300 ft upstream of such areas if spawning areas may be affected.
      - c) Design the crossing to provide for foreseeable risks (e.g., flooding and associated bedload and debris) to prevent the diversion of stream flow out of the channel and down the road if the crossing fails.
      - d) Vehicles and machinery will cross riparian buffer areas and streams at right angles to the main channel wherever possible.
    - 4. Obliteration. When the project is completed, obliterate all temporary access roads, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the inwater work period.
- p. Vehicles.
  - i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (e.g., minimally sized, low ground pressure equipment).
  - ii. Vehicle staging. Fuel, operate, maintain, and store vehicles as follows:
    - 1. Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage, except for that needed to service boats, in a vehicle staging area

- placed 150 ft or more from any stream, water body, or wetland, unless otherwise approved in writing by NMFS.
2. Inspect all vehicles operated within 150 ft of any stream, water body, or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by FERC or NMFS.
  3. Before activities begin and as often as necessary during construction activities, steam clean all equipment that will be used below the bankfull elevation until all visible external oil, grease, mud, and other visible contaminants are removed. Any washing of equipment must be conducted in a location that will not contribute untreated wastewater to any flowing stream or drainage area.
  4. Diaper all stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 ft of any stream, waterbody, or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or water body.
  5. At the end of each work shift, vehicles must not be stored within or over the waterway.
- q. Site preparation. Conserve native materials for site rehabilitation.
- i. If possible, leave native materials where they are found.
  - ii. If materials are moved, damaged, or destroyed, replace them with a functional equivalent during site rehabilitation.
  - iii. Stockpile any large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site rehabilitation.
- r. Isolation of inwater work area. If adult or juvenile fish are reasonably certain to be present, or if the work area is less than 300 ft upstream of spawning habitats, completely isolate the work area from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NMFS.
- s. Capture and release. Before and intermittently during pumping to isolate an inwater work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
- i. The entire capture and release operation will be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.
  - ii. If electrofishing equipment is used to capture fish, comply with NMFS' electrofishing guidelines, listed below.



1. Do not electrofish near adult salmon in spawning condition or near redds containing eggs.
  2. Keep equipment in good working condition. Complete manufacturers' preseason checks, follow all provisions, and record major maintenance work in a log.
  3. Train the crew by a crew leader with at least 100 hours of electrofishing experience in the field using similar equipment. Document the crew leader's experience in a logbook. Complete training in waters that do not contain listed fish before an inexperienced crew begins any electrofishing.
  4. Measure conductivity and set voltage as follows:
 

Conductivity ( $\mu\text{S}/\text{cm}$ )	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400
  5. Use direct current (DC) at all times.
  6. Begin each session with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of  $500\mu\text{s}$  and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.
  7. The zone of potential fish injury is 0.5 meters from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated, because in such areas the fish are more likely to come into close contact with the anode.
  8. Work the monitoring area systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
  9. Have crew members carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. End sampling if injuries occur or abnormally long recovery times persist.
  10. Whenever possible, place a block net below the area being sampled to capture stunned fish that may drift downstream.
  11. Record the electrofishing settings in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.
- iii. Do not use seining or electrofishing if water temperatures exceed  $18^{\circ}\text{C}$ .
  - iv. Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures, to prevent

- the added stress of out-of-water handling.
- v. Transport fish in aerated buckets, tanks, or sanctuary nets that hold water during transfer. Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.
  - vi. Do not transfer ESA-listed fish to anyone except NMFS or USFWS personnel, unless otherwise approved in writing by them.
  - vii. Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.
  - viii. Allow NMFS or the USFWS or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.
- t. Earthwork. Complete earthwork (including drilling, excavation, dredging, filling, and compacting) as quickly as possible.
- i. Excavation. Material removed during excavation will only be placed in locations where it cannot enter sensitive aquatic resources. Whenever topsoil is removed, it must be stored and reused on site to the greatest extent possible. If culvert inlet/outlet protecting riprap is used, it will be class 350 metric or larger, and topsoil will be placed over the rock and planted with native woody vegetation.
  - ii. Drilling and sampling. If drilling, boring, or jacking is used, the following conditions apply.
    - 1. Isolate drilling activities in wetted stream channels using a steel pile, sleeve, or other appropriate isolation method to prevent drilling fluids from contacting water.
    - 2. If it is necessary to drill through a bridge deck, use containment measures to prevent drilling debris from entering the channel.
    - 3. If directional drilling is used, the drill, bore, or jack hole will span the channel migration zone and any associated wetland.
    - 4. Sampling and directional drill recovery/recycling pits, and any associated waste or spoils, will be completely isolated from surface waters, off-channel habitats, and wetlands. All drilling fluids and waste will be recovered and recycled or disposed to prevent entry into flowing water.
    - 5. If a drill boring conductor breaks and drilling fluid or waste is visible in water or a wetland, all drilling activity will cease, pending written approval from NMFS to resume drilling.
  - iii. Site stabilization. Stabilize all disturbed areas, including obliteration of temporary roads, following any break in work, unless construction will resume within 4 days.
  - iv. Source of materials. Obtain boulders, rock, woody materials, and other natural construction materials used for the project outside the riparian buffer area.

- u. Implementation monitoring. For projects undertaken by or funded by PacifiCorp or Cowlitz PUD, PacifiCorp or Cowlitz PUD will include the status of a project or a description of the completed project in the annual report. This annual report will be submitted to FERC and NMFS describing the success in meeting the RPMs and associated terms and conditions of the Opinion and will include the following.
  - i. Project identification.
    - 1. Project implementor name, project name, detailed description of the project.
    - 2. Project location by 5th or 6th field HUC and by latitude and longitude as determined from the appropriate U.S. Geological Survey 7-minute quadrangle map.
    - 3. Starting and ending dates for the work completed.
  - ii. Photo documentation. Photo documentation of habitat conditions at the project site before, during, and after project completion.
    - 1. Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
    - 2. Label each photo with date, time, project name, photographer's name, and documentation of the subject activity.
  - iii. Other data. Additional project-specific data, as appropriate, for individual projects.
    - 1. Work cessation. Dates work ceased because of high flows, if any.
    - 2. Fish screen. Compliance with NMFS' fish screen criteria.
    - 3. Pollution and Erosion Control Plan. A summary of pollution and erosion control inspections, including any erosion control failures, contaminant releases, and correction efforts.
    - 4. Description of site preparation.
    - 5. Isolation of inwater work area, capture, and release.
      - a) Supervisory fish biologist's name and address.
      - b) Methods of work area isolation and take minimization.
      - c) Stream conditions before, during, and within 1 week after completion of work area isolation.
      - d) Means of fish capture.
      - e) Number of fish captured by species.
      - f) Location and condition of all fish released.
      - g) Any incidence of observed injury or mortality of listed species.
    - 6. Streambank protection.
      - a) Type and amount of materials used.
      - b) Project size - one bank or two, width, and linear feet.
    - 7. Site rehabilitation. Photo or other documentation that site rehabilitation performance standards were met.

NMFS will be reviewing the detailed construction plans submitted to advise FERC regarding whether or not those plans are likely to meet the “best management practices” articulated in this incidental take statement terms and conditions, or such additional best management practices that NMFS deems appropriate.

- 3) Conditions for research for the monitoring and evaluation identified in the November 30, 2004 Lewis River Settlement Agreement. Not all of these conditions may apply to the specific actions authorized by this ITS. Nonetheless, failure to adhere to any condition that does apply may cause NMFS to revoke the ITS.
- a. All Monitoring and Evaluation plans associated with anadromous fish developed under the November 30, 2004 Lewis River Settlement Agreement must meet NMFS’ satisfaction and must be approved by NMFS. Work will be conducted by PacifiCorp, Cowlitz PUD, or those hired by the Licensee(s) to conduct the work.
- To ensure that the monitoring and evaluation plan will provide a benefit to listed species, and provide useful information on the effectiveness of various aquatic measures as well as achievement of the Reintroduction Outcome Goals, PacifiCorp and Cowlitz PUD will develop plan(s) and methods to monitor aspects of the various aquatic measures, including:
- Fish passage
  - Adult anadromous salmonid migration, spawning, distribution, and abundance
  - Water quality
  - Hatchery supplementation programs
  - Resident fish species

The Licensees’ plan(s), among other items, will thoroughly describe of all methods that will be used to capture fish and how fish will be handled; details such as sampling locations and dates; and invasive procedures such as tagging, taking tissue samples, or sacrifice and will explain the purpose of each. Each plan will include estimates of the number of each species and life stage that will be handled and/or killed for that study. In addition, the plans will include methods by which they will be modified if empirical evidence indicates that negative effects on a species/life stage are greater than expected. The Licensees’ will provide NMFS with annual reports, which NMFS will use to determine whether or not to authorize the next year’s work under a multiyear plan. NMFS must approve all plans in writing before they are implemented.

- b. The evaluator must ensure that listed species are taken only at the levels, by the

- means, in the areas, and for the purposes stated in the plans developed, and according to the conditions in this permit.
- c. The evaluator must not intentionally kill or cause to be killed any listed species unless the plan specifically allows intentional lethal take.
  - d. The evaluator must handle listed fish with extreme care and keep them in cold water to the maximum extent possible during sampling and processing procedures. When fish are transferred or held, a healthy environment must be provided; e.g., the holding units must contain adequate amounts of well-circulated water. When using gear that captures a mix of species, the researcher must process listed fish first to minimize handling stress.
  - e. The evaluator must stop handling listed juvenile fish if the water temperature exceeds 70° F at the capture site. Under these conditions, listed fish may only be visually identified and counted.
  - f. If the evaluator anesthetizes listed fish to avoid injuring or killing them during handling, the fish must be allowed to recover before being released. Fish that are only counted must remain in water and not be anesthetized.
  - g. The evaluator must use a sterilized needle for each individual injection when PIT-tags are inserted into listed fish.
  - h. If the evaluator unintentionally captures any listed adult fish while sampling for juveniles, the adult fish must be released without further handling and such take must be reported.
  - i. The evaluator must exercise care during spawning ground surveys to avoid disturbing listed adult salmonids when they are spawning. Evaluators must avoid walking in salmon streams whenever possible, especially where listed salmonids are likely to spawn. Visual observation must be used instead of intrusive sampling methods, especially when just determining fish presence.
  - j. The evaluator must use the other applicable terms and conditions in this ITS including, but not limited to, term and condition 2.s.
  - k. The evaluator must obtain approval from NMFS before changing sampling locations or research protocols.
  - l. The evaluator must notify NMFS as soon as possible but no later than 2 days after any authorized level of take is exceeded or if such an event is likely. The evaluator must submit a written report detailing why the authorized take level

- was exceeded or is likely to be exceeded.
- m. The evaluator is responsible for any biological samples collected from listed species as long as they are used for research purposes. The evaluator may not transfer biological samples to anyone not listed in the application without prior written approval from NMFS.
  - n. The person(s) actually doing the evaluation must carry a copy of this ITS and the applicable plan while conducting the authorized activities.
  - o. The evaluator must allow any NMFS employee or representative to accompany field personnel while they conduct the evaluation activities.
  - p. The evaluator must allow any NMFS employee or representative to inspect any records or facilities related to the permit activities.
  - q. The evaluator must obtain all other Federal, state, and local permits/authorizations needed for the evaluation activities.
  - r. Every year, the evaluator must submit to NMFS a post-season report in the prescribed form (ATTACHMENT 2) describing the evaluation activities, the number of listed fish taken and the location, the type of take, the number of fish intentionally killed and unintentionally killed, the take dates, and a brief summary of the monitoring results. This report may be included in the annual report identified in the SA and required by this ITS. Falsifying annual reports or permit records is a violation of this ITS.
  - s. If the evaluator violates any permit condition they will be subject to any and all penalties provided by the ESA. NMFS may revoke this permit if the authorized activities are not conducted in compliance with the permit and the requirements of the ESA or if NMFS determines that its ESA findings are no longer valid.
  - t. Listed fish mortalities and tissue samples will be returned to the capture site.
- 4) Within 2 days of observance, reports of dead or injured salmon or steelhead shall be sent to:
- Lewis Hydro Projects Staff Lead
  - HydroPower Division
  - National Marine Fisheries Service
  - 1201 NE Lloyd Blvd., Suite 1100
  - Portland, Oregon 97232

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Include a concise description of the causative event (if known), and a description of any resultant corrective actions taken (if any) to reduce the likelihood of future mortalities or injuries.

## APPENDIX E

### Terms and Conditions included in the U.S. Fish and Wildlife Service's Biological Opinion for the Relicensing of the Lewis River Hydroelectric Projects: Merwin (No. 935), Yale (No. 2071), Swift No. 1 (No. 2111), and Swift No. 2 (No. 2213)

September 15, 2006

#### TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, the FERC or its applicant must comply with the following Terms and Conditions (T&C), which implement the Reasonable and Prudent Measures described above and outline required reporting/monitoring requirements. These Terms and Conditions are non-discretionary. Because no RPMs were identified to minimize the incidental take of spotted owls and bald eagles, there are no associated Terms and Conditions for these species.

#### Bull Trout

**T&C 1.1:** In restoring coho to Yale Lake, select for early spawners, if feasible, so that Cougar Creek bull trout will spawn at least partly after coho, thus reducing coho redd superimposition on bull trout.

**T&C 2.1:** Conduct annual bull trout surveys in the Swift No. 2 tailrace, Bypass Reach, and Lower and Upper Constructed Channels to document presence or absence of bull trout spawning and egg survival, if appropriate, in these locations. This will occur for a minimum of 3 years following completion of the Upper Release Point and implementation of the Bypass Reach flows (as directed by the WDOE) or until it is demonstrated that bull trout spawning does not occur in these areas.

**T&C 3.1:** If bull trout occur in the required random sample of mixed downstream migrant species in the Swift Creek Reservoir and Yale Lake traps, smolt-sized bull trout should be placed immediately in the recovery tank and transported to the next reservoir downstream. Bull trout fry should be separated from larger fish and be transferred to a separate fry tank. If possible, bull trout fry should be separated from other fry and released back into Swift Creek Reservoir away from the surface collector.

**T&C 4.1:** Determine the appropriate timing windows for instream construction in the Bypass Reach based on annual patterns of flow, temperature, and adult bull trout abundance, with a view toward minimizing suspended sediment impacts on bull trout and substrate embeddedness.

**T&C 4.2:** Where feasible and appropriate for the type, magnitude and duration of the instream activity, isolate instream construction from the flow during the work



period by installing temporary dams and pumping or diverting the water around the work zone. Dewatering may require fish rescue to avoid stranding.

**T&C 5.1:** The Licensees are authorized the direct take (harass by survey, capture, handle, and release) of bull trout while conducting annual monitoring activities and surveys for the purpose of enhancing bull trout survival, as well as to take bull trout in interim and permanent bull trout passage operations in accordance with the conditions stated below. Permitted activities are restricted to the Lewis River Subbasin, from the Columbia River to North Fork Lewis River Mile 72.5 (Lower Falls), including Lake Merwin, Yale Lake, and Swift Creek Reservoir, and all Lewis River tributaries up to Lower Falls.

**T&C 5.2.** The Utilities are responsible for assuring that the individuals conducting monitoring or collect and haul operations are properly trained and educated, and complying with the following Terms and Conditions. The Utilities shall retain a current list of such people and the list should include the following:

- 1) The name of each individual;
- 2) The resume or qualifications statement of each, detailing their experience with each species and type of activity for which they will be conducting; and
- 3) The names and phone numbers of a minimum of two references.

**T&C 5.3:** All capture, handling, and observation methods shall be implemented at times that will avoid temperature stress of bull trout being surveyed, collected, monitored, rescued, or relocated.

**T&C 5.4:** All live bull trout captured shall be released as soon as possible. Any bull trout captured and showing signs of stress or injury should only be released when able to maintain itself. Nurture such individuals in a holding tank until they have recovered. If bull trout are held in a tank, a healthy environment for the stressed bull trout must be provided, and the holding time must be minimized. Water-to-water transfers, the use of shaded, dark containers, and supplemental oxygen shall all be considered in designing bull trout handling operations. Any bull trout fry must be held in a separate container from other bull trout (including juvenile bull trout), to avoid predation by larger bull trout during captivity.

**T&C 5.5:** The period of time that captured bull trout are anesthetized shall be minimized. The number of bull trout that are anesthetized at one time shall be no more than what can be processed (biosampled) within several minutes.

**T&C 5.6:** Prior to conducting activities that involve handling of bull trout, the permittee shall ensure that hands are free of sunscreen, lotion, or insect repellent.

## Reporting Requirements

In order to monitor the effectiveness of implementing the Reasonable and Prudent Measures, the FERC or its applicants will prepare a report describing their progress in implementing the Terms and Conditions and the licenses. An annual progress report should be sent to the FWS attention: Division Manager, Division of Conservation and Hydropower Planning. The report may be included in the Annual Report required under

the SA and shall include, but not be limited to, the following:

- 1) Significant research results and its importance with regards to recovery of bull trout;
- 2) Maps or descriptions of locations sampled for each species;
- 3) The results of all sampling efforts including estimates of population size;
- 4) Quantification of take, including numbers of individuals incidentally killed, including dates, locations, and circumstances of lethal take, and an estimate of the numbers of individuals otherwise harmed or harassed (e.g., displaced during snorkeling surveys);
- 5) Other pertinent observations made during sampling efforts regarding the status and ecology of the bull trout, including size of individuals and presumed life-history form;
- 6) Progress with implementing the RPMs;
- 7) Activities carried out in the Conservation Covenants;
- 8) Activities conducted under the WHMPs;
- 9) Changes to dam operations that improve or protect the species or their habitat; and
- 10) Implementation of any Conservation Recommendations.

The FERC or its Licensees are to notify the FWS within 3 working days upon locating a dead, injured, or sick endangered or threatened species specimen. They must make initial notification at the nearest FWS Law Enforcement Office. Contact the FWS Law Enforcement Office at (425) 883-8122 or the FWS Western Washington Fish and Wildlife Office at (360) 753-9440. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information. Care should be taken in the handling of sick or injured specimens to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. Reports of incidental injury or killing must include the date, time, precise location of the injured animal or carcass, and any other pertinent information such as cause of death or injury. In regards to bull trout, all incidental mortalities shall be preserved in a fashion to best provide maximum scientific information (otoliths, scales, genetic samples, general fisheries statistics, etc.). Any specimen killed shall be kept whole and put on ice or frozen, and a small sample of tissue (fin clip approximately 1 square centimeter) shall be preserved in a vial of 95 percent ethanol for genetic analysis.

Document Content(s)

revised p-935.DOC.....1-130

Order On Rehearing  
October 16, 2008

125 FERC ¶ 61,046  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;  
Sudeen G. Kelly, Marc Spitzer,  
Philip D. Moeller, and Jon Wellinghoff.

PacifiCorp

Project Nos. 2111-031  
2071-036  
935-082

ORDER ON REHEARING

(Issued October 16, 2008)

1. PacifiCorp has filed a request for rehearing of the June 26, 2008 Commission staff orders issuing new licenses for the continued operation and maintenance of the 240-megawatt (MW) Swift No. 1 Project No. 2111, the 134-MW Yale Project No. 2071, and the 136-MW Merwin Project No. 935, located on the North Fork Lewis River in Clark, Cowlitz and Skamania Counties, Washington.<sup>1</sup> PacifiCorp seeks modification or clarification and rehearing of its three licenses regarding (1) dead tree removal, (2) emergency telephone notification service, (3) the filing of amendment applications, (4) bull trout netting, (5) evaluation of kokanee, (6) lands for habitat management, (7) the South Merwin Trail access, (8) the Cougar Visitor Information Facility, (9) cost caps, (10) flood control, and (11) flow releases. In addition, the National Marine Fisheries Service (NMFS) filed a request for clarification and correction of the orders, and Washington Department of Fish and Wildlife (Washington DFW) filed a request for

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<sup>1</sup> *PacifiCorp*, 123 FERC ¶ 62,260 (2008), *PacifiCorp*, 123 FERC ¶ 62,257 (2008) and *PacifiCorp*, 123 FERC ¶62,258 (2008).

Project No. 2111-031, *et al.*

- 2 -

rehearing regarding the boat launch at Swift No. 1.<sup>2</sup> For the reasons discussed below, we deny rehearing and grant the clarifications and corrections, in part.

### **Background**

2. PacifiCorp is the licensee for three of the four licenses issued on June 26, 2008, for four projects located on the North Fork Lewis River. Public Utility District No. 1 of Cowlitz County (Cowlitz) is the licensee of the fourth project, the Swift No. 2 Project No. 2213 (located between the Swift No. 1 and Yale Projects).<sup>3</sup> PacifiCorp's Swift No. 1 Project is the furthest upstream and largest project in the Lewis River system. The project includes a 412-foot-high, 2,100-foot-long embankment structure, impounding an 11.5-mile-long, 4,600-acre reservoir. The Yale Project includes two zoned embankment dams -- the largest being 323 feet high and 1,500 feet long -- and a 10.5-mile-long reservoir with a surface area of 3,800 acres at full pool elevation. The oldest and most downstream project in the basin is PacifiCorp's Merwin Project. Its 313-foot-high concrete arch dam extends 1,300 feet across the Lewis River, impounding a 14.5-mile-long reservoir with a surface area of 4,000 acres at full pool.

3. The licenses incorporate almost all of the provisions of a comprehensive Settlement Agreement (Agreement) related to the relicensing of the four projects.<sup>4</sup> The provisions of the Agreement that are common to all four projects are discussed in the Order on Offer of Settlement and Issuing New License for the Swift No. 1 Project (Master Order).<sup>5</sup>

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<sup>2</sup> On July 28, 2008, Clark Regional Emergency Services Agency (CRESA) filed a rehearing request concerning license requirements regarding emergency telephone notification service. The agency did not intervene in the relicensing proceedings, and because only parties to a proceeding may seek rehearing of an order on the merits, its rehearing request was rejected by notice issued on August 19, 2008. *PacifiCorp*, 124 FERC ¶ 61,172 (2008). Nevertheless, CRESA's concern is resolved in Paragraphs 8 and 9 of this order.

<sup>3</sup> See *Public Utility District No. 1 of Cowlitz County, Washington*, 3 FERC ¶ 62,259 (2008).

<sup>4</sup> The Agreement was filed on December 3, 2004.

<sup>5</sup> 123 FERC ¶ 62,260 (2008).

## **Discussion**

### **A. Preliminary Matters**

4. To the extent that PacifiCorp's and NMFS' pleadings seek rehearing of the relicenses, they are deficient because they fail to comply with the requirements of section 385.713(c)(2) of our regulations,<sup>6</sup> which requires that rehearing requests include a section, separate from the body of the rehearing order, entitled "Statement of Issues." The "Statement of Issues" section must list each issue in a separately enumerated paragraph that includes representative Commission and court precedent on which the participant is relying.<sup>7</sup> Section 375.713(c)(2) further provides that "any issue not so listed will be deemed waived." Neither PacifiCorp nor NMFS included a separate "Statement of Issues" section in its rehearing request.<sup>8</sup> Although their arguments are deemed waived, we will nevertheless address them.

### **B. Boat Launch**

5. On rehearing, Washington DFW argues that the existing boat launch at the Swift No. 1 reservoir is not usable at low reservoir elevations and the license should instead include section 11.2.1.8 of the Agreement, which provides that, if during the license term, an entity other than the licensee constructs a new boat launch and related facilities that would allow access to the reservoir when water levels are low, the licensee must assume operation and maintenance responsibilities. However, if the boat launch is destroyed by vandalism or natural causes, the licensee's responsibilities would end.

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<sup>6</sup> 18 C.F.R. § 385.713(c)(2) (2008).

<sup>7</sup> The purpose of this requirement is to benefit all participants in a proceeding by ensuring that the filer, the Commission, and all other participants understand the issues raised by the filer, and to enable the Commission to respond to these issues. Having a clearly articulated Statement of Issues ensures that issues are properly raised before the Commission and avoids the waste of time and resources involved in litigating appeals regarding which the courts of appeals lack jurisdiction because the issues on appeal were not clearly identified before the Commission.

<sup>8</sup> On August 20, 2008, PacifiCorp filed a pleading styled "Errata" in which it attempted to correct the omission merely by titling the body of the rehearing request "Statement of Issues." The revision came almost a month after the July 25 rehearing deadline. Even if it had been timely filed, it failed to cure the deficiency.

6. On rehearing, Washington DFW asserts that the existing boat ramp is not useable during periods of reservoir drawdown and cannot be extended sufficiently to allow reservoir use during the non-recreation season. Upon review of the information provided by Washington DFW, we find that the boat launch at Swift No. 1 reservoir is not useable during winter drawdown; however, it is accessible during the primary recreation season. Due to the location and steep terrain of this reservoir, Swift reservoir receives the fewest visitors of all the reservoirs at the project. Therefore, we do not believe that the use of the Swift reservoir outside of the summer recreation season warrants the construction of another boat launch. We accordingly deny Washington DFW's request for rehearing. At the same time, we do not oppose the construction of the boat launch if a party obtains funding, as envisioned in the Agreement. This is a facility that could be constructed and maintained outside of the license.

### **C. Requirements to Remove Dead Trees Along the Reservoir Peripheries**

7. PacifiCorp requests that the Commission revise standard Article 20<sup>9</sup> to allow certain dead trees to be left for wildlife and aquatic habitat. The purpose of Article 20 is to require the removal from the reservoir and its perimeter of those dead trees that pose a hazard to project operations, public safety, or navigation; it does not require removal of dead trees that will not pose such hazards.<sup>10</sup> Thus, the licensee will not be required to remove dead trees that do not pose such hazards. If PacifiCorp has any further questions on this matter, it should consult with the Commission staff. Accordingly, we will not revise Article 20.

### **D. Emergency Telephone Notification**

8. PacifiCorp requests that the emergency telephone notification service requirement of the license, Article 304(a), be revised to require PacifiCorp to only provide funding for the system, and not installation, operation, and maintenance of the system.<sup>11</sup> Both Clark

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<sup>9</sup> Article 20 is found in the three licenses in attached Form L-1.

<sup>10</sup> See, e.g., *Montana Power Company and Granite County, Montana*, 62 FERC ¶61,166, at p. 62,140 (1993); *Wisconsin Electric Power Company*, 75 FERC ¶ 61,011 (1996).

<sup>11</sup> Article 304 (a) of the three licenses requires that the licensee “acquire, install and maintain a new emergency telephone notification service for those portions of Clark County and Cowlitz County that are subject to inundation from the Lewis River projects.”



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and Cowlitz Counties have already installed the emergency telephone notification service called for in the Agreement.

9. As clarification, the Commission did not intend for PacifiCorp to develop a duplicate emergency telephone notification service, only to ensure that there is such a system. PacifiCorp, while ultimately responsible for such a system, may (as it has done here) delegate its responsibilities to the counties.<sup>12</sup>

**E. Requirement to File Amendment Applications (License Article 401(b))**

10. Article 401(b) requires PacifiCorp to file applications to amend its license prior to implementing “unspecified long-term changes to project operations, requirements, or facilities for the purpose of protecting and enhancing environmental resources.” PacifiCorp and NMFS assert that this is unnecessary because the Agreement resolves all issues regarding the relicensing of the project, and the parties to the Agreement do not contemplate any measures that are not already included in the Agreement and the conditions of the license.

11. We agree that if measures are contemplated in the Agreement and incorporated in the license, then minor changes or adjustments to those requirements would not require an application to amend the license. However, in the event that the licensee wishes to implement unspecified, long-term, material changes to project operations, requirements, or facilities (i.e., not contemplated in the Agreement and not evaluated by staff prior to issuing the license order), then an amendment would be required. If the licensee is uncertain of whether an action requires an amendment, it should consult with Commission staff prior to undertaking the action.

12. Article 401(b)(1) requires that PacifiCorp file an application to amend the license for any “adjustments” to the upstream fish passage facility required by the license. PacifiCorp states that this will place an unnecessary burden on it to seek an amendment for any change to the facility, however minor. We clarify that this is not meant to require an amendment for minor changes to the facility, but rather for those material changes that were not contemplated by the license.

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<sup>12</sup> Any other issues related to emergency communications will be handled under the projects’ existing Emergency Action Plans.

**F. Requirement to Net Bull Trout and Kokanee Evaluation**

13. Article 402(a) in the Swift No. 1 and Yale licenses requires that PacifiCorp net bull trout from the projects' tailraces and haul them to a location determined by FWS. PacifiCorp contends that Article 402 should be deleted as unnecessary. These measures are already covered by other conditions of the license, respectively, the bull trout collection and transport plan required by NMFS's Biological Opinion (condition 1, which incorporates section 4.9 of the Agreement) and the hatchery and supplementation program that is also required by the Biological Opinion (condition 1, which incorporates section 8 of the Agreement). We agree that those requirements of the article should be deleted, but that Article 402 is necessary for requiring evaluation of bull trout annually for both the Swift No.1 and Yale Projects and for managing designated conservation lands on Cougar Creek for the protection of bull trout in the Yale Project. Accordingly, we will revise Article 402 in both the Swift No. 1 and Yale licenses.

14. Article 402(b) in the Swift No. 1, Yale and Merwin licenses require that the licensee evaluate bull trout and kokanee populations annually. Because kokanee reside only in the Yale and Merwin reservoirs, we will revise Article 402 of the Swift No. 1 license to require annual evaluation only of bull trout in the Swift No. 1 reservoir.

**G. Incorporating Wildlife Habitat Lands into the Project Boundary**

15. PacifiCorp requests rehearing of Article 403 in the three licenses, which requires that all land acquired for wildlife habitat under the Wildlife Habitat Management Plan must be included within the project boundaries.<sup>13</sup> PacifiCorp asserts that inclusion of these lands alters the settlement and creates unnecessary additional expenses and processes. Furthermore, it states that incorporating these lands within the project boundaries does not serve project purposes or assure that the public interest is served.

16. We disagree. Acquisition and maintenance of lands for wildlife habitat has been determined by the Commission to satisfy a project purpose and has been included in the

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<sup>13</sup> Article 403 in the Merwin Project does not include wildlife habitat land acquisition, but rather requires filing a Wildlife Habitat Management Plan with the Commission for approval, as described in section 10.8 of the Agreement. For the Yale and Swift No. 1 licenses, lands acquired for wildlife habitat are required to be included in the project boundary. In the event that the Merwin Project acquires additional lands for wildlife habitat, those lands shall be included in the project boundary.

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licenses.<sup>14</sup> Accordingly, the lands acquired for this purpose must be included within the project boundary. A project boundary serves the function of indicating that the lands within are used in some manner for project purposes. This helps to reduce ambiguity for purposes of license administration and compliance by clarifying the geographic scope of the licensee's responsibilities under its license (and the Commission's regulatory responsibilities).<sup>15</sup> Any lands managed pursuant to a license condition, or if used for "project purposes," should be included in the project boundary, regardless of existing management agreements by the applicant.

17. We will, however, modify Article 403 in the Swift No. 1 and Yale licenses, as PacifiCorp requests, to require that it update its project boundaries within five years of license issuance to reflect all lands acquired for wildlife habitat under that article during that period, rather than requiring a project boundary update upon each new parcel acquisition.

18. The second concern raised by PacifiCorp regarding wildlife habitat lands was the requirement to file annual plans that would describe the lands proposed to be acquired under the land acquisition and habitat enhancement funds. PacifiCorp is concerned about land speculation if the lands were delineated in the plan for approval before they would be purchased. To avoid such speculation, we will revise Article 403 in the Swift No. 1 and Yale licenses to require that the lands be described in the annual plans after they have been acquired.

#### **H. South Merwin Trail Access**

19. Article 406 of the Merwin license requires that PacifiCorp submit a plan to provide a trail easement to connect a proposed Clark County regional park to the south side of Lake Merwin, as outlined in section 11.2.3.4 of the Agreement. In 2007, Clark County finalized its comprehensive plan, which did not mention the Merwin location for a regional park. PacifiCorp requests that we clarify the obligation to provide a trail easement is contingent upon Clark County committing to develop the regional park near Merwin Lake.

20. We will revise Article 406 to require that the plan providing a trail easement to the regional park is contingent on Clark County developing the regional park.

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<sup>14</sup> See EIS at 5-29 to 5-31. Wildlife habitat lands acquisition and maintenance are discussed in each of the three licenses under Section B of Other Issues.

<sup>15</sup> See *PacifiCorp*, 80 FERC ¶ 61,334 (1997).

### **I. Cougar Visitor Information Facility**

21. PacifiCorp requests that we eliminate the Cougar Visitor Information Facility because the facility is not necessary to carry out project purposes and reasonable alternatives exist for a visitor's facility and for a facility to curate artifacts.

22. In the EIS, Commission staff concluded that a visitor's center in Cougar would allow the licensees to provide general information on the projects to the public and more specific information on recreational opportunities or safety and security. Including the Cougar Visitor Information Facility in the project boundary would help ensure that the proposed facility would be used for project purposes for the term of the new license. The project area closest to Cougar is the Yale Project.<sup>16</sup> In response to comments on the draft EIS, staff stated that, as proposed in the Agreement, the visitor information facility would be developed immediately adjacent to the projects and would provide public information about recreational opportunities at the projects.

23. The four Lewis River projects are the primary recreational attraction in the vicinity of Cougar and, as acknowledged in the Joint Explanatory Statement of the Agreement, the visitor center would provide benefits to project visitors.<sup>17</sup> The Visitor Information Center would serve as a primary gateway to the upper Lewis River Basin by providing public information on its history and resources, including information about the Yale and Swift Creek reservoirs, project facilities and operations, environmental, recreational and cultural resources. We agree with staff that there is a clear nexus with the projects and we will continue to require that a Visitor Information Facility plan be filed within five years of the date of issuance of the license as set forth in Article 410 of the Yale license.

### **J. Cost Caps**

24. The Master Order recognizes that the Agreement and many of the conditions of the four licenses establish limits on the licensee's responsibility to fund various resource mitigation measures and studies, but concludes that it is nevertheless the licensees' obligation to complete the measures required by the license articles, in the absence of Commission authorization to the contrary.<sup>18</sup>

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<sup>16</sup> EIS at 5-30.

<sup>17</sup> *Id.* at A-18.

<sup>18</sup> 123 FERC ¶ 62,260 at P 21.

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25. On rehearing, PacifiCorp objects to this conclusion, and asks instead that the Commission approve the cost limits included in the Agreement.

26. We deny the request. We understand the licensee's desire to fix the costs that it may incur for resource protection and enhancement measures. As the order explains, it is likely that the specified funding will be sufficient for the measures in question. However, the Commission cannot constrain the fulfillment of its statutory responsibilities by agreeing to such spending caps.<sup>19</sup> We therefore affirm the conclusion in the Master Order that it is the licensee's obligation to complete the measures required by the license articles, in the absence of Commission authorization to the contrary. In addition, we are adding an additional license article to each license to so state.

#### **K. Flood Control Requirements**

27. PacifiCorp seeks clarification of Article 302 of the three licenses, which provides for flood management at the three projects. According to section 12.8 of the Settlement Agreement, PacifiCorp will seek an amendment of the FEMA agreement and Standard Operating Procedure Manual by the first anniversary of the license issuance. Once PacifiCorp obtains FEMA approval of the revised high runoff procedure, it then can seek an amendment to the licenses.

#### **L. Flow Release Requirements**

28. PacifiCorp requests that the Commission clarify whether the licenses require that the Commission be notified prior to adjustment of minimum flow for approval or whether the intent was for the Commission to be notified after a change in minimum flow. The Master Order, at paragraph 29, stated that the procedures should also include notification of the Commission regarding any deviations from the required minimum flows. We will include a new license article in the three licenses which clarifies the notification requirement.

#### **M. Corrections to License Articles and Appendices**

29. As discussed below, PacifiCorp points out a number of corrections that should be made to various conditions of the three licenses.

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<sup>19</sup> See, e.g., *Public Utility District No. 1 of Chelan County, Washington*, 119 FERC ¶ 61,055, at P 12-17 (2007).

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30. We will correct the last sentence in standard Article 29 of the three licenses.
31. Appendix E of the Swift No. 1 Project license will be corrected to complete the last sentence in Article 2.
32. Ordering Paragraph (E) of the Yale Project license will be changed to refer to Appendix B.
33. Appendix A, Section 4.3(4)(a) of the Yale Project water quality certificate, references the 7Q10 year flow of 32,884 cfs for the Lewis River at Merwin Dam. As PacifiCorp states, it should reference the 7Q10 year flow of 27,088 cfs at the Yale Dam. We will make this correction. In addition, sections 4.4(2)(f) and 4.4(3) will be revised to conform to the language in the water quality certification.
34. NMFS pointed out six typographical errors in the Yale Project No. 2071 section 18 prescriptions (Appendix B), which we will correct.

#### **N. Corrections to Discussion Section of License Order**

35. PacifiCorp also seeks correction of some typographical errors and other items in the discussion section of the order. The requested corrections and edits are minor and do not affect the license articles or ordering paragraphs. We take note of them, but see no need to take any action.

#### **The Commission orders:**

(A) The request for rehearing filed on July 28, 2008, by the Washington Department of Fish and Wildlife is denied.

(B) The request for rehearing filed on July 28, 2008, by PacifiCorp is granted to the extent set forth in this order.

(C) The request for rehearing filed on July 25, 2008, by National Marine Fisheries Service is granted to the extent set forth in this order.

(D) The following technical corrections and clarifications are granted to the extent described above and the orders are revised to read as follows:

(1) Yale Project No. 2071, Ordering Paragraph (E) shall be revised to refer to Appendix B.

(2) Article 401(b)(1) of the Swift No.1 Project No. 2111, Yale Project No. 2071 and Merwin Project No. 935 are each revised as follows:

	Condition No.	Modification
1	Section 18 no. 4.5 and BO no. 1	Modifications to passage facilities to achieve performance standards

(3) Article 402 in the Swift No. 1 Project No. 2111 is revised to read as follows:

Article 402. *Aquatic Resources Management Measures.* The licensee shall continue to implement the following aquatic resources management measure:

(a) in conjunction with the licensees for the Yale Project No. 2071 and Merwin Project No. 935, evaluate bull trout populations annually.

The licensee shall include evidence of compliance with this measure in the annual reports filed with the Commission under section 14.2.6 of the Settlement Agreement (Agreement) filed on December 3, 2004.

In addition, the licensee shall file with the Commission within 2 years of license issuance, a bull trout limiting factor analysis, as described in section 5.5 of the Agreement filed on December 3, 2004.

(4) Article 402 in the Yale Project No. 2071 is revised to read as follows:

Article 402. *Aquatic Resources Management Measures.* The licensee shall continue to implement the following aquatic resources management measures:

(a) in conjunction with the Swift No. 1 Project No. 2111 and Merwin Project No. 935, evaluate bull trout and kokanee populations annually; and

(b) manage designated conservation lands on Cougar Creek for the protection of bull trout (section 5.2 of the Settlement Agreement filed on December 3, 2004).

The licensee shall include evidence of compliance with these measures in the annual reports filed with the Commission under section 14.2.6 of the Settlement Agreement.

(5) The second paragraph of Article 403 of the Swift No.1 Project No. 2111 is revised to read as follows:

All lands acquired for wildlife habitat under the Swift No. 1 and Swift No. 2 Land Acquisition and Habitat Protection Fund and the Lewis River Land Acquisition and Habitat Enhancement Fund shall be included within the project boundary and updated

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within five years of the issuance date of the license to reflect all lands acquired for wildlife habitat under the Wildlife Habitat Management Plan.

(6) The sixth paragraph of Article 403 of the Swift No. 1 Project No. 2111 is revised to read, in part, as follows:

.... The annual plans shall include: (a) a description of the lands acquired under the Swift No. 1 and Swift No. 2 Land Acquisition and Habitat Protection Fund; (b) a description of the lands acquired under the Lewis River Acquisition and Habitat Enhancement fund associated with the Swift No. 2 Project .....

(7) The second paragraph of Article 403 of the Yale Project No. 2071 is revised to read as follows:

All lands acquired for wildlife habitat under the Yale and Lewis River Land Acquisition and Habitat Protection Funds shall be included within the project boundary and updated within five years of the issuance date of the license to reflect all lands acquired for wildlife habitat under the Wildlife Habitat Management Plan.

(8) The sixth paragraph of Article 403 of the Yale Project No. 2071 is revised to read, in part, as follows:

.... The annual plans shall include: (a) a description of the lands acquired under the Yale Land Acquisition and Habitat Protection Funds; (b) a description of the lands acquired under the Lewis River Acquisition and Habitat Enhancement fund associated with the Yale Project; .....

(9) The first sentence of Article 406 of the Merwin Project No. 935 is revised to read as follows:

*South Shore Merwin Trail Access Plan.* Within one year of Clark County committing to develop a regional park near Merwin Lake, the licensee shall file with the Commission for approval, a plan to provide a trail easement to connect a proposed Clark County regional park to the south side of Lake Merwin, as outlined in section 11.2.3.4 of the Settlement Agreement filed on December 3, 2004.

(10) The following license Articles regarding cost caps are added to each of the licenses.

Swift No. 1 Project No. 2111: Article 413. Funding. Notwithstanding the limitation on expenditures as expressed in the mandatory conditions and included in this license, the Commission reserves the right to require the licensee to undertake such



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measures as may be appropriate and reasonable to implement approved plans and other requirements in this license.

Yale Project No. 2071: Article 415. *Funding*. Notwithstanding the limitation on expenditures as expressed in the mandatory conditions and included in this license, the Commission reserves the right to require the licensee to undertake such measures as may be appropriate and reasonable to implement approved plans and other requirements in this license.

Merwin Project No. 935: Article 414. *Funding*. Notwithstanding the limitation on expenditures as expressed in the mandatory conditions and included in this license, the Commission reserves the right to require the licensee to undertake such measures as may be appropriate and reasonable to implement approved plans and other requirements in this license.

(11) The following license Articles regarding modification of minimum flows are added to each of the licenses.

Swift No. 1 Project No. 2111 : Article 414. *Minimum Flow Modification*. The licensee may temporarily decrease minimum flows below Swift No. 1 Dam upon agreement between the licensee and the Flow Coordination Committee as defined in Section 6.2.5 of the Settlement Agreement. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each incident.

Yale Project No. 2071: Article 416. *Minimum Flow Modification*. The licensee may temporarily decrease minimum flows below Yale Dam upon agreement between the licensee and the Flow Coordination Committee as defined in Section 6.2.5 of the Settlement Agreement. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each incident.

Merwin Project No. 935: Article 415. *Minimum Flow Modification*. The licensee may temporarily decrease minimum flows below Merwin Dam pursuant to Sections 6.2.4 and 6.2.5 of the Settlement Agreement. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each incident.

(12) The last sentence in Form L-1, Article 29 of the Swift No.1 Project No. 2111, the Yale Project No. 2071 and the Merwin Project No. 935 are each revised as follows:

Provided further, that in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

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(13) The dates of the Settlement Agreement in the mandatory conditions are revised as follows:

Swift No. 1 Project No. 2111, Appendix C, Exhibit A, title shall read as: November 30, 2004;

Swift No. 1 Project No. 2111, Appendix D, first sentence shall read as: filed ... on December 2, 2004;

Merwin Project No. 935, Appendix A, Section 4.2, first sentence shall read as: November 30, 2004, submitted to FERC on December 2, 2004; and

Merwin Project No. 935, Appendix A, Exhibit A, title shall read as: November 30, 2004.

(14) In Swift No. 1 Project No. 2111, the last sentence of Appendix E shall be revised to read as follows:

... Settlement Agreement concerning the relicensing of the Lewis River Hydroelectric Project Nos. 935, 2071, 2111 and 2213, Cowlitz and Skamania Counties, Washington, dated November 30, 2004, and filed with the Commission on December 3, 2004.

(15) Yale Project No. 2071, Appendix A, is revised as follows:

(a) Section 4.3(4)(a) ..... the 7Q10 flow for the Lewis River at Yale Dam is 27,088 cfs;

(b) Section 4.4(2)(f) : Identify adaptive management strategies to further improve the temperature fluctuation regime for the cold-water biota in the event that target temperatures are not achieved.

(c) Section 4.4(3) : If it is determined through the TWQAP that steps must be taken in order to protect the most sensitive beneficial uses, the Licensee shall employ all reasonable and feasible methods identified in response to condition 2(e and f) to ensure that the water temperature fluctuation regime in the Canyon remains below levels which would harm the aquatic biota or limit the potential healthy cold water habitat.

(16) Yale Project No. 2071, Appendix B, is revised as follows:

(1) On page 81, the acronym for Collection Efficiency is “CE”; (2) on page 82, in article 4.3, the third sentence shall read: “The Licensee must consider without limitation entry rate, fall back, crowding at the entrance, delay and abandonment of the trap area”; (3) on page 84, in article 6, the first sentence is revised to read as: “Unless and until

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alternative technologies are implemented, the Licensee must provide for the transport by truck of all Transported Species collected at the Yale Upstream Facility”; (4) on page 87, in article 10, the first sentence of the second paragraph shall read: “Unless otherwise directed by the Services, the Licensee must provide for the marking of all the transported juvenile anadromous salmonids collected by the Yale Downstream Facility until such time as the Yale Upstream Facility is completed pursuant to this license and the Swift Upstream Facility is completed pursuant to the Swift No. 1 and Swift No. 2 licenses, and 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”; (5) on page 88, in article 11, the last sentence shall read: “If these facilities do not function as well to collect bull trout as the interim collection method based on effectiveness monitoring, as determined by the USFWS, the Licensee shall continue the interim collection method”; and (6) on page 90, in article 13, the fourth paragraph, the third sentence shall read: “The Licensee, together with the licensees for the Merwin, 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.”

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.