

123 FERC ¶ 61,049
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.

Public Utility District No. 2 of Grant County,
Washington

Project No. 2114-116

ORDER ISSUING NEW LICENSE

(Issued April 17, 2008)

INTRODUCTION

1. On October 29, 2003, Public Utility District No. 2 of Grant County, Washington (Grant PUD) filed an application for a new license pursuant to sections 4(e) and 15 of the Federal Power Act (FPA),¹ to continue operation and maintenance of the Priest Rapids Hydroelectric Project No. 2114. The project's authorized capacity is 1,893 megawatts (MW). The project is located on the mid-Columbia River, in portions of Grant, Yakima, Kittitas, Douglas, Benton, and Chelan Counties, Washington,² and occupies about 3,052 acres of federal land managed by the Bureau of Reclamation (Reclamation), the Bureau of Land Management (BLM), the U.S. Department of the Army (Army), the U.S. Fish and Wildlife Service (FWS), and the U.S. Department of Energy (DOE). As discussed below, we are issuing a new license for the project.

BACKGROUND

2. The Federal Power Commission (FPC) issued the original license for the project on November 4, 1955, and the license expired on October 31, 2005.³ Since then, Grant

¹16 U.S.C. §§ 797(e) and 808 (2000).

²Because the Columbia River is a navigable waterway of the United States, the project is required to be licensed pursuant to section 23(b)(1) of the FPA. *Public Utility District No. 2 of Grant County*, 14 FPC 1067 (1955).

³14 FPC 1067 (1955). The original license was granted for 50 years with an

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PUD has operated the project under annual licenses pending the disposition of its new license application.

3. Notice of the application for a new license was issued on November 7, 2003, and published in the *Federal Register* on November 19, 2003.⁴ The Washington Department of Fish and Wildlife (Washington DFW); American Rivers; Bonneville Power Administration (BPA); the U.S. Department of the Interior (Interior); Columbia River Inter-Tribal Fish Commission (CRITFC);⁵ Alaska Department of Fish and Game (Alaska DFG); National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); the Confederated Tribes and Bands of the Yakama Nation (Yakama); Benton Rural Electric Association; and jointly, Kootenai Electric Cooperative, Inc., Clearwater Power Company, Idaho County Light and Power Cooperative Association, Inc., and Northern Lights, Inc. filed timely motions to intervene.⁶

4. Avista Corporation (Avista); Public Utility District No. 1 of Kittitas County (Kittitas PUD); Yakima County; and the Wanapum Indians (Wanapum) filed late motions to intervene. These motions were granted by notice issued February 16, 2006.

5. On March 28, 2005, the Commission issued public notice that the project was ready for environmental analysis and solicited comments, recommendations, terms and conditions, and prescriptions.⁷ In response, comments and recommendations were filed by Pat Kelleher; Terry W. Garrick; NMFS; Washington DFW; Interior; Alaska DFG; Washington Department of Natural Resources (Washington DNR); Kittitas County Department of Public Works; and jointly, CRITFC, the Yakama, and the Confederated Tribes of the Umatilla Indian Reservation (Umatilla). Grant PUD filed reply comments.

effective date of November 1, 1955.

⁴68 Fed. Reg. 65,271 (November 19, 2003).

⁵CRITFC is an organization established by the Nez Perce Tribe, Confederated Tribes of the Umatilla Reservation, Confederated Tribes of the Warm Springs Reservation, and Confederated Tribes and Bands of the Yakama Indian Nation to represent the tribes in coordinating fish management policies and objectives in the Columbia River.

⁶The Yakama's intervention expressed opposition to the project, but it later withdrew its opposition and now supports the project. *See* letter filed July 11, 2007.

⁷70 Fed. Reg. 17,248-49 (April 5, 2005).

6. On February 24, 2006, Commission staff issued a draft Environmental Impact Statement (EIS).⁸ On February 28, 2006, the Commission issued a notice inviting comments on the draft EIS. Comments were filed by the State of Washington, Department of Archaeology and Historic Preservation; Interior; the U.S. Environmental Protection Agency (EPA); Confederated Tribes of the Colville Reservation (Colville); Pat Kelleher; BPA; Tom Foster; Kittitas County, Washington; Washington DNR; American Rivers; Umatilla; Wanapum; Yakama; DOE; Terry W. Garrick; NMFS; Alaska DFG; Washington DFW; Yakima County; Grant County; Port of Mattawa; Port of Warden; and Grant PUD.⁹ Staff considered all of the comments received on the draft EIS in preparing the final EIS, which was issued on November 17, 2006.

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

PROJECT DESCRIPTION

A. Project Area

8. The Columbia River Basin is 1,210 miles long, of which 460 miles are in Canada and 740 miles are in the United States. It drains an area of 259,000 square miles, including a great part of Washington and Oregon, substantially all of Idaho, the western portion of Montana, and smaller areas in Wyoming and Utah. The Columbia River historically produced the world's largest runs of Chinook salmon and steelhead trout, major runs of coho and sockeye salmon, and small numbers of chum and pink salmon.

9. The 1930s saw the beginning of construction of a series of major dams planned for the Columbia and Snake Rivers for the purposes of electric power,¹⁰ flood control, and irrigation, which contributed to the decline of several species of fish.

10. Proceeding downstream from the Canadian-U.S. border, the first two dams on the Columbia River are Grand Coulee and Chief Joseph (at river miles (RM) 597 and 544, respectively), both of which are federally owned and operated. The next five developments are the so-called mid-Columbia dams, all of which are under Commission

⁸Unless otherwise specified, EIS refers to the Final EIS.

⁹Commission staff also held two public meetings in Grant County to provide interested persons an opportunity to comment on the draft EIS.

¹⁰The Columbia River and its tributaries represent one-third of the hydroelectric power produced in the United States.

license: the 774-MW Wells Project No. 2149 (at RM 516); the 1,213-MW Rocky Reach Project No. 2145 (at RM 474); the 623-MW Rock Island Project No. 943 (at RM 453); and the Priest Rapids Project (including the Wanapum and Priest Rapids developments) (at RM 415 and 397).

11. Downstream of the Mid-Columbia dams, the Columbia River is joined by the Snake and Walla Walla Rivers, and turns west toward the ocean. On this stretch of the river, which is called the main stem, there are four federal dams (upstream to downstream): McNary, John Day, The Dalles, and Bonneville.

12. In the project area, there are more than 40 species of fish, including both anadromous and resident fish. There are six anadromous species, including Chinook salmon;¹¹ sockeye salmon; steelhead; coho salmon; Pacific lamprey; and American Shad. There are 38 resident species, including bull trout, white sturgeon, rainbow trout, walleye, smallmouth bass, and northern pikeminnow.¹²

13. Below the Priest Rapids Project is the Hanford Reach, which is the largest unimpounded section of the mainstem Columbia River that remains accessible to salmon. The Vernita Bar is a gravel bar located downstream of Priest Rapids dam and is one of the primary spawning areas for fall Chinook salmon within the Hanford Reach.

B. Project Facilities

14. The project includes two hydroelectric developments, Wanapum and Priest Rapids. In its application, Grant PUD proposed to replace the Wanapum development's turbines with more efficient, fish-friendly turbines and install a downstream fish passage structure at one of the existing unused intakes at the Wanapum development. It subsequently filed for and received authorization to perform these improvements under its existing license. Those features are included in the listed project facilities.¹³

¹¹Three runs (spring, summer, and fall) of Chinook salmon inhabit the project area. The Endangered Species Act treats these three runs as two evolutionarily significant units: Upper Columbia River spring-run Chinook salmon (endangered) and Upper Columbia River summer/fall Chinook salmon (listing not warranted at this time).

¹²EIS at 132-34.

¹³Grant PUD, in its relicense application, also proposed a possible increase in capacity of 100.6 MW at the Priest Rapids development (from 855.0 MW to 955.6 MW) through the replacement of old turbines with new, upgraded ones. We find that consideration of this proposal is premature inasmuch as Grant PUD does not propose

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15. Wanapum, the upstream development, consists of a 14,680-acre reservoir¹⁴ and an 8,637-foot-long by 186.5-foot-high dam spanning the river. The dam consists of left and right embankment sections; left and right concrete gravity dam sections; a left and right fish passage structure, each with an upstream fish ladder; a gated spillway; an intake section for future generating units; a downstream fish passage structure in one of the unused intake sections (unit No. 11);¹⁵ a powerhouse containing 10 vertical shaft integrated Kaplan turbine/generator sets with a total authorized capacity of 1,038 MW;¹⁶ the Wanapum Dam Heritage Center; and three 230-kilovolt (kV) overhead transmission lines. The first transmission line is 1.5 miles long and connects to two switchyards of the Wanapum development, the second runs from one of the switchyards north for 31 miles to the BPA's Columbia substation, and the third runs south for 17 miles and connects the Wanapum substation with the Priest Rapids substation.

16. The Priest Rapids development consists of a 7,725-acre reservoir¹⁷ and a 10,103-foot-long by 179.5-foot-high dam spanning the river. The dam consists of left and right

turbine replacement until 2017, and, even then, only if the existing turbines have reached the end of their useful life. Grant PUD may request amendment of the license to increase the capacity at the Priest Rapids development when its plans are more definite.

¹⁴The Wanapum reservoir extends 38 miles upstream to the tailwater of the Chelan County PUD's Rock Island dam (Project No. 943).

¹⁵In 2004, the Commission issued an order for the design and construction of a downstream fish passage structure in a vacant unit-bay of Wanapum dam (future fish unit No. 11). *See* 109 FERC ¶ 62,216 at 64,425 (Ordering Paragraph (A)), and 64,427-28 (Attachment A, Action 3) (2004). That fish passage structure was completed on April 9, 2008.

¹⁶In 2004, and again in 2005, the Commission issued two orders authorizing the replacement at the Wanapum development of the ten existing Kaplan turbines with advanced-design, fish-friendly Kaplan turbines to increase fish survival. Order Modifying and Approving Amendment of License Application and Revising Annual Charges (108 FERC ¶ 62,075 (2004)) and Order Authorizing Installation of Remaining Units (113 FERC ¶ 62,205 (2005)). With the completion of these upgraded turbines, the generating capacity at the Wanapum development will increase, bringing the total authorized installed capacity for the project from 1,755 MW to 1,893 MW. As of the date of issuance of this order, the replacement of Units 4, 8, and 10 has been completed.

¹⁷The Priest Rapids Reservoir extends 18 miles upstream to the tailwater of the Wanapum dam.

embankment sections; left and right concrete gravity dam sections; a left and right fish passage structure each with an upstream fish ladder; a gated spillway section; a powerhouse containing 10 vertical shaft integrated Kaplan turbine/generator sets with a total authorized capacity of 855 MW; a fish hatchery;¹⁸ the Wanapum Indian Village;¹⁹ and three 230-kV transmission lines from transformers at the powerhouse to the Priest Rapids switchyard 1 mile away, then continuing for 6 miles to the BPA's Midway substation. A more detailed description is contained in Ordering Paragraph (B)(2).

C. Project Boundary

17. The existing project boundary, consisting of lands necessary for the safe operation and maintenance of the project and other purposes, such as recreation, shoreline control, and protection of environmental resources, encompasses about 34,380 acres.²⁰

18. The project boundary, which extends for about 58 miles along the Columbia River, encloses both reservoirs and the tailrace below the Priest Rapids dam. It includes lands along the shoreline that generally average from 100 feet to 150 feet from the full pool elevation at both reservoirs. In a few instances it expands to as much as 2,000 feet to enclose project features such as Buckshot Ranch (one of the project recreation sites) and a portion of the Yakima Training Center. Downstream from the Priest Rapids dam, the project boundary extends about 1 mile along the west bank and 2 miles along the east bank. All existing project facilities, including Wanapum and Priest Rapids dams and powerhouses, reservoirs, a fish hatchery, the Wanapum Indian Village, and 23 recreation sites are located within the project boundary. The transmission line right-of-way boundary for the project ranges from 100 feet to 500 feet in width.

19. About 3,052 acres²¹ within the boundary are federal lands under the jurisdiction of DOE, BLM, Reclamation, the Army, and FWS. Grant PUD proposes no change to the project boundary.

¹⁸The Priest Rapids hatchery was originally a spawning channel developed under a 1963 agreement between the licensee and Washington DFW. Since 1980 it has operated as a pond-rearing hatchery and produces about 7 million fall Chinook smolts annually which are then distributed through the reservoirs and Hanford Reach.

¹⁹See discussion, *infra*.

²⁰The reservoirs occupy 22,405 of these acres.

²¹In the Order Approving Revised Exhibits J and K and Amending License, 56 FPC 968 (1976), the Commission set forth annual charges for the use of 3,052 acres of

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D. Current Project Operation

20. Most of the flow entering the project comes from releases from the federal Grand Coulee Project.²² Because the Grand Coulee Project is substantially larger than the downstream FERC-licensed projects, the amount and timing of its water releases directly affect the operation of these projects. To try to ensure that the water releases did not overwhelm the FERC-licensed projects, the operators of these projects entered into an agreement, the Mid-Columbia Hourly Coordination Agreement (HCA),²³ to manage the projects' operations so that all of the mid-Columbia projects' operations are coordinated to best use the flows for generation and to meet fishery needs. Each of the mid-Columbia dams, including Wanapum and Priest Rapids, is operated in accordance with the terms of the HCA, under which Grant PUD serves as the coordinator for all of the dams, scheduling activities and coordinating operations from its headquarters in Ephrata, Washington.

21. Each day, participants of the HCA provide Grant PUD with an estimated schedule of desired generation from the five mid-Columbia projects, including the two Priest Rapids developments. Federal operators of the two upper projects, Chief Joseph and Grand Coulee, provide Grant PUD with an estimate of water expected to be discharged from these two dams. Grant PUD then determines an estimated operation schedule for the following day based on anticipated flows, reservoir levels, and load. Operations at the Priest Rapids Project are designed primarily to meet daily load requirements by drafting of the reservoir during the day and refilling it overnight.

federal land. The Exhibit Gs of the License Application show 3,052 acres of federal land. However, in section 5.0 of Exhibit A of the License Application, filed on October 29, 2003, Grant PUD stated that there are 3,104 acres (52 acres more) of federal land occupied by the project. Since the amount of federal lands in the application's Exhibit Gs and the 1976 order is the same and no boundary changes were proposed in the application, it appears that Exhibit A is incorrect and the correct acreage is 3,052 acres. Therefore, we are assessing annual charges for 3,052 acres in Article 201, and requiring in Article 203 Grant PUD to file an explanation of the discrepancy.

²²The remaining inflow comes from tributaries and intervening drainage between the Grand Coulee and Priest Rapids Projects.

²³The HCA originally was signed for a one-year experimental period from July 1, 1972, to June 30, 1973. The agreement was extended numerous times, and the most recent renewal extends the term of the HCA to November 1, 2017. *See* EIS, section 2.1.8.

22. The typical daily operations of both Wanapum and Priest Rapids include a drawdown of about 1 to 3 feet below the normal maximum pool elevation, while maintaining a required 36,000 cubic feet per second (cfs) minimum flow to provide cooling water for a downstream generating plant.²⁴

23. In addition, Grant PUD follows the provisions of the Vernita Bar Settlement Agreement (Vernita Bar Agreement), which established minimum flows to be maintained in the Hanford Reach below Priest Rapids dam (with the cooperation of the operators of the upstream dams) during the spawning, incubation, and emergence periods for fall Chinook salmon.²⁵

24. When flows exceed turbine capacity, the gated spillways at both developments release river flows. The gated spillways also spill water when needed to aid downstream fish migration.

E. Proposed Project Operation and Environmental Measures

25. Grant PUD proposes to continue to operate the project in coordination with the upstream mid-Columbia projects to generate power and to provide minimum flows in the Hanford Reach during the spawning, incubation, and emergence periods for fall Chinook salmon and during the rearing period for salmon fry. Grant PUD also proposes to continue to implement, pursuant to the two settlement agreements described below, a number of environmental protection, mitigation, and enhancement measures designed to aid salmon and steelhead. In addition to the measures proposed for salmon and steelhead, Grant PUD proposes measures to enhance water quality and other fishery resources, including improving passage for Pacific lamprey; stocking white sturgeon; monitoring water quality, including total dissolved gases; and managing for nuisance aquatic invasive species.

26. In addition, Grant PUD proposes to complete the replacement of existing generating equipment with more efficient and fish-friendly equipment, as authorized under the current license.

27. Grant PUD also proposes to maintain existing recreation sites and to enhance recreation by providing, in coordination with the development of shoreline management policies and wildlife habitat management measures, more camping sites, trails, and picnic

²⁴Article 45 of the existing license. 14 FPC at 1074.

²⁵The Vernita Bar Agreement was incorporated into the existing license in 1998. 45 FERC ¶ 61,401 (1998).

areas, longer boat launches, and better signage at these existing sites. Wildlife enhancement measures proposed by Grant PUD include habitat improvements, marking transmission lines to prevent avian collisions, controlling noxious weeds, protecting federally listed species, and continuing to provide raptor and waterfowl nesting structures. Grant PUD would also finalize a cultural resources management plan to protect archeological sites. In addition, Grant PUD would continue, through a new agreement with the Wanapum, to protect and manage cultural resources, gravesites, and relics at the project, that are significant to the Wanapum.

SETTLEMENT AGREEMENTS

28. Subsequent to filing the relicense application, Grant PUD filed two settlement agreements regarding fishery resources in the proceeding: (1) the Hanford Reach Fall Chinook Protection Program Agreement (Hanford Agreement); and (2) the Priest Rapids Salmon and Steelhead Settlement Agreement (Salmon Agreement).

29. Under the Hanford Agreement, filed April 19, 2004, Grant PUD proposes a continuation of the Vernita Bar Agreement's minimum flows during the term of the new license²⁶ to protect and enhance fall Chinook salmon during the spawning, pre-hatch, post-hatch, and emergence periods, but would add to the Vernita Bar Agreement's terms additional minimum flow and flow fluctuation regulation provisions to protect fall Chinook salmon fry during the rearing period. As discussed below, the substantive requirements of the Hanford Agreement have been incorporated into the water quality certification conditions and NMFS' and FWS' fishway prescriptions under section 18 of the FPA. Signatories to the Hanford Agreement are Grant PUD, Chelan PUD, Douglas PUD, BPA, NMFS, Interior, Washington DFW, and the Colville.

30. Under the Salmon Agreement, filed February 10, 2006, Grant PUD proposes to achieve and maintain "no net impact" from the project on spring, summer, and fall Chinook salmon; sockeye salmon; steelhead; and coho salmon.²⁷ Grant PUD would accomplish this objective through a combination of fish passage measures, fish passage survival performance standards, improvements to the Priest Rapids Fish Hatchery, hatchery propagation, implementation of the Hanford Agreement, and the establishment of and contribution to two funds (a habitat conservation fund and a no net impact fund) to

²⁶After 10 years, the flows established in the Vernita Bar Agreement could be modified pursuant to the reopener provisions of the agreement.

²⁷Under part of the Salmon Agreement (see section 7.7), "no net impact" is defined as the condition whereby the project does not produce unmitigated project-related mortality.

be used to mitigate for project effects on anadromous salmonids that pass through the project area or are affected by project operations. As discussed below, the substantive requirements of the Salmon Agreement have been incorporated into the water quality certification conditions, NMFS' and FWS' section 18 prescriptions, and NMFS' terms and conditions to the incidental take statement for endangered salmon and steelhead. Signatories to the Salmon Agreement are Grant PUD, NMFS, Interior, Washington DFW, the Yakama, and the Colville.

31. Neither of these settlements is comprehensive, since each addresses limited issues and has a limited number of parties as signatories. However, since the licensee subscribes to both the Hanford and Salmon Agreements and the terms of these agreements relate to the issues on relicense (flows to protect fall Chinook salmon in the Hanford Reach, upstream and downstream passage of anadromous salmonids, and habitat and hatchery mitigation for salmon and steelhead), the agreements constitute modifications to Grant PUD's licensing proposal, and have been treated as such in this proceeding. The Salmon Agreement (and therefore, the Hanford Agreement, which it encompasses) was noticed for comment on February 17, 2006, 71 Fed. Reg. 9820-21 (February 27, 2006), and was addressed in the EIS for the project.

TRIBAL INTERESTS

32. There are five federally-recognized tribes and one non-federally-recognized tribe with noted interest in this proceeding. The Yakama, the Umatilla, the Confederated Tribes of the Warm Springs Indian Reservation, the Nez Perce Tribe,²⁸ and the Colville are federally-recognized tribes, and each of which entered into treaties with the United States.²⁹ While the project is not located on tribal land, each of the treaties provides for fishing by tribal members at usual and customary places, which include the project area.

33. The Wanapum are not a federally-recognized tribe and did not enter into a treaty with the United States, but live in a village located along the shore of the Priest Rapids development and within the project boundary.

²⁸The Nez Perce did not file comments in this proceeding.

²⁹*See*, respectively, the Treaty with the Yakama, Treaty of June 9, 1855, at Fort Stevens, 12 Stat. 951; Treaty with the Walla Walla, Cayuse, etc., Treaty of June 9, 1855, at Camp Stevens, 12 Stat. 945; Treaty with the Tribes of Middle Oregon, Treaty of June 20, 1855, at Wasco, 12 Stat. 963; Treaty with the Nez Perce, Treaty of June 11, 1855, at Camp Stevens, 12 Stat. 957; and the Executive Order of July 2, 1872, establishing the Colville Reservation.

34. The Commission recognizes the unique relationship between the United States and Indian tribes as defined by treaties, statutes, and judicial decisions. We carry out our responsibilities towards Indian tribes in the context of the FPA and other statutes that establish Commission responsibilities. We recognize the cultural and economic significance to the tribes of the aquatic species and habitat involved in this proceeding, and carry out our responsibilities under the FPA with those considerations in mind.

WATER QUALITY CERTIFICATION

35. Under Section 401(a)(1) of the Clean Water Act (CWA),³⁰ the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency either has issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.³¹

36. On September 17, 2003, Grant PUD applied to the Washington Department of Ecology (Washington Ecology) for water quality certification for the Priest Rapids Project. Each year since that date, Grant PUD has withdrawn and refiled its application. The most recent re-application was filed on October 3, 2006. On April 3, 2007, Washington Ecology issued certification for the Priest Rapids Project. On March 17, 2008, Washington Ecology filed a revised certification, which contains the conditions that are set forth in Appendix A of this order and incorporated into the license by Ordering Paragraph (D).

37. The certification requires that the project be operated pursuant to: (1) the Salmon Agreement for spring, summer, and fall Chinook salmon; steelhead; sockeye salmon; and coho salmon,³² and (2) the bull trout, white sturgeon, Pacific lamprey, and native resident fish management plans to be developed as provided in Appendix C of the water quality certification (certification Appendix C).³³ The certification requires the establishment of groups for coordination and implementation of the requirements under the Salmon

³⁰33 U.S.C. § 1341(a)(1) (2000).

³¹33 U.S.C. § 1341(d) (2000).

³²See certification, section 6.2(1)-(3).

³³See Appendix A to this order, which contains Appendix C of the certification.

Agreement and under certification Appendix C,³⁴ as well as implementation of measures to determine attainment of specified biological objectives.³⁵

38. In addition, the certification requires that Grant PUD: (1) operate the project under the Hanford Agreement and Salmon Agreement to manage flow and flow fluctuations; (2) continue to provide at least an equivalent level of protection of water quality if either agreement is replaced, modified, or terminated; (3) address its contribution to any harm to designated uses in Hanford Reach caused by its flow fluctuations allowed under the existing Hanford Agreement; and (4) take action in consultation with the Fall Chinook Work Group.³⁶ The certification also contains requirements related to total dissolved gas levels,³⁷ installation of fish passage facilities at Wanapum dam and Priest Rapids dam,³⁸ temperature,³⁹ monitoring of pH and dissolved

³⁴The Priest Rapids Coordination Committee is to be formed under the Salmon Agreement; the Priest Rapids Fish Forum is to be formed pursuant to the requirements of certification Appendix C. *See* certification, section 6.2(4)(a) and (b).

³⁵Certification at section 6.2(5).

³⁶Under the certification, the Fall Chinook Work Group is to consist of all members of the Priest Rapids Coordination Committee (formed under the Salmon Agreement), signatories to the Hanford Agreement, and other interested stakeholders.

³⁷Certification at section 6.4.

³⁸Certification at section 6.4(3)-(5) and (6). The certification requires installation of the future unit No. 11 fish bypass facility at Wanapum dam in accordance with the Commission's order issued December 16, 2004, 109 FERC ¶ 62,216, and installation of bypass facilities at Priest Rapids dam by December 31, 2010, or at an alternate date agreed to by the Priest Rapids Coordinating Committee and the Priest Rapids Fishery Forum, subject to approval by Washington Ecology. As noted above, the Wanapum fish bypass facility was completed on April 9, 2008.

³⁹*Id.* at section 6.5.

oxygen (DO),⁴⁰ quality assurance for water quality monitoring,⁴¹ construction activities,⁴² and spill prevention and control.⁴³

39. The certification states that any future changes to applicable state water quality laws shall apply to the project to the fullest extent permitted by law. It reserves to Washington Ecology the right to modify schedules and deadlines provided under the certification, to require additional monitoring and studies, to take various actions to enforce the terms of the certification, and to condition or deny future proposed changes to the project or project operations that might significantly and adversely affect compliance with any applicable water quality standard.

40. In the EIS, Commission staff did not recommend requiring Grant PUD to: (1) provide annual contributions to a “no net impact fund” for unmitigated effects on salmon and steelhead because the FPA does not impose a no-net-loss requirement,⁴⁴ and the license requires multiple actions and measures that would substantially improve conditions for salmon and steelhead stocks;⁴⁵ (2) consult with the Priest Rapids Committee if coho salmon or Okanogan spring Chinook salmon become re-established in the mid-Columbia River because it is premature to require this at this time and it can be addressed through reopening or amending the license;⁴⁶ and (3) fund improvements and annual operation and maintenance costs for the Columbia Basin Hatchery because this proposal is not intended to benefit resident fish or recreational resources in the project area and requiring stocking of resident fish in the project area would likely be

⁴⁰*Id.* at section 6.6.

⁴¹*Id.* at section 6.7.

⁴²*Id.* at section 6.8.

⁴³*Id.* at section 6.9.

⁴⁴*See, e.g. Ohio Power*, 71 FERC ¶ 61,092 (1995) and *Indiana Michigan Power Co.*, 82 FERC ¶ 61,274 (1998).

⁴⁵EIS at 435-36.

⁴⁶*Id.* at 436.

unsuccessful and conflict with ongoing fisheries management efforts.⁴⁷ However, these measures are components of the water quality certification, and are thus required by the license.

41. Article 401 requires the licensee to file, for Commission approval, the plans required by the certification conditions.

SECTION 4(e) FINDING

42. About 400 acres along the west shoreline of the Priest Rapids reservoir are located on Army lands within the Yakima Training Center. Section 4(e) of the FPA⁴⁸ provides that the Commission can issue a license for a project located within any reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired.⁴⁹ The Yakima Training Center was originally established in 1942 as the Yakima Firing Center.⁵⁰ The Yakima Training Center encompasses more than 261,000 acres and is used for maneuver/training, with a multi-purpose range complex and housing for troops.⁵¹ There is no evidence or allegation in this proceeding to indicate that relicensing the Priest Rapids Project would interfere with the purposes of the Yakima Training Center. We find that this license, as conditioned, will be consistent with the purposes for which the Yakima Training Center was created.

⁴⁷*Id.* at 453-54. The Columbia Basin Hatchery, owned and operated by Washington DFW is located near Moses Lake, Washington, outside of the project boundary. It was constructed as mitigation for the original construction of the Priest Rapids Project. While originally fish from the hatchery were placed in the project reaches, due to lack of success in establishing sport fisheries with the project reservoirs, fish now are used to stock local lakes throughout Grant County.

⁴⁸16 U.S.C. § 797(e) (2000). “Reservations” as defined in FPA section 3(2), 16 U.S.C. § 794(2), includes “military reservations.”

⁴⁹Another portion of the project occupies federal lands managed by BLM, Reclamation, FWS, and DOE. Nothing in the record of this proceeding indicates that any of these lands are “reservations,” as defined in FPA section 3(2), 16 U.S.C. § 794(2).

⁵⁰The Center was originally built in 1942. *See* <http://www.lewis.army.mil/yakima/sites/about/history.asp>. Acquisition of additional lands was authorized in 1991 pursuant to Pub. L. No. 102-190 and Pub. L. No. 102-136.

⁵¹License Application, Vol. 6 at E8-80.

43. Section 4(e) further requires that Commission licenses for projects located within federal reservations must include all conditions that the secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. The Army filed no 4(e) conditions.

NATIONAL MONUMENT LANDS

44. A small portion of the transmission line is located within the boundary of the Hanford Reach National Monument, which was established by President Clinton in 2000 to protect habitat that is the largest remnant of the shrub-steppe ecosystem that once dominated the Columbia River basin.⁵² Generally, the Commission is prohibited from issuing licenses authorizing the construction or operation of projects within a national monument.⁵³ However, the project, including the transmission line, was licensed and constructed prior to the designation of the monument area and the proclamation itself allows the continuation of existing transmission systems within the monument.⁵⁴ Therefore, we find that in this instance there is no bar to relicensing the project.

SECTION 18 FISHWAY PRESCRIPTIONS

45. Section 18 of the FPA⁵⁵ 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. In this instance, both FWS and NMFS have filed fishway prescriptions.

46. NMFS filed preliminary fishway prescriptions for salmon and steelhead on May 27, 2005. Subsequently, NMFS, Grant PUD, and other parties signed and filed the Salmon Agreement. In accordance with that agreement, NMFS filed modified fishway prescriptions for salmon and steelhead on June 22, 2006. On March 21, 2008, NMFS filed clarifications to its modified fishway prescriptions. These prescriptions are consistent with the terms of the Salmon Agreement and the components of the water

⁵²Presidential Proclamation No. 7319, 65 Fed. Reg. 37,253 (June 13, 2000).

⁵³*See Northern States Power Company*, 67 FERC ¶ 61,282 (1994).

⁵⁴The proclamation states that “Nothing in this proclamation shall interfere with the operation and maintenance of existing facilities of the Columbia Basin Reclamation Project, the Federal Columbia River Transmission System, or other existing utility services that are located within the monument.”

⁵⁵16 U.S.C. § 811 (2000).

quality certification that address salmon and steelhead passage. The prescriptions are set forth in Appendix B of this order and incorporated into the license by Ordering Paragraph (E).

47. FWS filed preliminary fishway prescriptions for salmon, steelhead, bull trout, and Pacific lamprey on May 26, 2005. Pursuant to section 241 of the Energy Policy Act of 2005 (EPAAct)⁵⁶ and its implementing regulations,⁵⁷ Grant PUD filed alternative fishway prescriptions addressing fish passage for the four species. Subsequently, FWS, Grant PUD, and other parties signed and filed the Salmon Agreement. In accord with that agreement, FWS withdrew its preliminary prescriptions for salmon and steelhead. FWS filed modified prescriptions on February 20, 2007, and clarifications to these modified prescriptions on March 21, 2008. FWS' prescriptions are almost identical to NMFS' prescriptions. These prescriptions are set forth in Appendix B of this order and incorporated into the license by Ordering Paragraph (E).

48. There are 28 prescriptions from NMFS and FWS. A series of prescriptions requires the licensee to develop and implement programs, including funding a "no net impact fund," to achieve no net impact from operations of the project on populations of spring, summer, and fall Chinook salmon, sockeye salmon, and steelhead in the Hanford Reach and upstream to the tailrace immediately below Rock Island Dam.⁵⁸

49. Several prescriptions set out passage survival performance standards and operational measures for their achievement. In relation to Wanapum dam, they include requirements that the licensee: (1) timely complete the construction of the Wanapum

⁵⁶See Pub. L. No. 109-58, 119 Stat. 595 (2005). The EPAAct amended section 18 and added a new section 33 to the FPA (16 U.S.C. § 823d (2000)) that applies to preliminary section 18 prescriptions issued by the Departments of the Interior or Commerce (Departments) in Commission license proceedings. Under new regulations developed by the Departments to implement section 241 of EPAAct, any party to a Commission license proceeding may: (1) request a trial-type hearing on "disputed issues of material fact;" and (2) propose alternative conditions or prescriptions that the Departments must accept unless inconsistent with certain energy and environmental criteria. (See 70 Fed. Reg. 69,804 (November 17, 2005)).

⁵⁷43 C.F.R. Part 45 (2007).

⁵⁸Each of these five prescriptions required a comprehensive program based on the approaches set out in the Salmon Agreement and intended to achieve the overall program's performance standards.

dam future unit No. 11 fish bypass;⁵⁹ (2) continue spill through the Wanapum spillway until verification of improved downstream survival rates via the future fish unit No. 11; (3) test new turbines to determine whether they are performing as expected with respect to juvenile survival; and (4) continue implementation of the 2000 total dissolved gas abatement plan at Wanapum.

50. In relation to Priest Rapids dam, the prescriptions include requirements that the licensee: (1) annually revise a downstream passage alternative action plan for the Priest Rapids dam; (2) focus development of downstream passage facilities using a “top spill” design; (3) investigate changes to the spill pattern at Priest Rapids dam to find methods to improve juvenile survival through its spillway; (4) investigate alternatives for reducing total dissolved gas production in the Priest Rapids spillway; (5) operate the Priest Rapids dam turbines to optimize juvenile survival; (6) operate and maintain Passive Integrated Transponder (PIT)⁶⁰ tag detection capability in the right and left bank fishways; and (7) complete construction of an off-ladder adult trap in the left bank fishway.⁶¹

51. At both dams, the prescriptions require the licensee to: (1) continue to investigate methods for improving hydraulic conditions in the project fishways; (2) maintain video monitoring equipment for counting adults migrating through the right and left bank fishways at both Wanapum and Priest Rapids dams; and (3) operate project sluiceways at both dams continually from the end of summer spill until November 15 to provide a safer passage route for adult fallbacks.⁶²

52. Given the nearly identical nature of the NMFS’ and FWS’ prescriptions, we have combined them into one appendix, and the combined prescriptions are set forth in Appendix B of this order and incorporated into the license (Ordering Paragraph (E)).

⁵⁹Construction of the Wanapum dam future Unit No. 11 fish bypass was completed on April 9, 2008.

⁶⁰Passive Integrated Transponder tags, or "PIT tags," are small microchips (about the size of a grain of rice) that are injected into fish. Each tag contains a unique code that is assigned to identify individual fish. Scanners at detection sites activate and read the tag's electromagnetic code.

⁶¹In a letter filed on July 16, 2007, Grant PUD indicated that construction of the off-ladder adult trap had been completed.

⁶²Fallbacks are fish that pass back downstream of a dam after having ascended the dam’s fishways.

53. Finally, NMFS and FWS requested that the Commission reserve authority to prescribe fishways or modifications to fishways. Consistent with Commission policy, Article 408 retains authority to the Commission to require Grant PUD to construct, operate, and maintain fishways that may be prescribed by NMFS or FWS.

54. Article 401 requires the licensee to file, for Commission approval, plans required by the section 18 prescriptions.

THREATENED AND ENDANGERED SPECIES

55. Section 7(a)(2) of the Endangered Species Act of 1973,⁶³ 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.

56. The Upper Columbia River (UCR) spring-run Chinook salmon and the UCR steelhead are federally listed as endangered and occur in the project area, as does designated critical habitat of these species. In addition, the following federally listed species and proposed critical habitat may occur in the project area: pygmy rabbit (endangered); bull trout and Ute Ladies'-tresses (threatened); and designated critical habitat for bull trout. In the EIS, staff addressed the project's effects on these species and their critical habitat.

A. Consultation with NMFS

57. Based on its analysis in the EIS, staff concluded that relicensing the project as recommended by staff is likely to adversely affect the endangered UCR spring-run Chinook salmon and UCR steelhead, but would not likely destroy or adversely modify designated critical habitat for these species. Based on its finding that the project is likely to adversely affect the endangered salmon and steelhead, the Commission staff initiated formal consultation with NMFS by letter dated March 2, 2006.

58. On February 1, 2008, NMFS issued a Biological Opinion (BO) that concludes that issuing a new license to the project, as recommended by Commission staff, is not likely to jeopardize the continued existence of UCR spring-run Chinook salmon and UCR steelhead, and is not likely to destroy or adversely modify designated critical habitat of these species. As part of its BO, NMFS included an incidental take statement with three reasonable and prudent measures to minimize incidental take of UCR spring-run Chinook salmon and UCR steelhead, along with 40 terms and conditions that include

⁶³16 U.S.C. § 1536(a) (2000).

implementation of measures and various reporting and monitoring actions. The reasonable and prudent measures and accompanying terms and conditions are set forth in Appendix C of this order and incorporated into the license (Ordering Paragraph (F)).

B. Consultation with FWS

59. Based on its analysis in the final EIS, staff concluded that relicensing the project as recommended by staff would have no effect on the endangered pygmy rabbit or threatened Ute Ladies'-tresses, would not likely adversely affect the threatened bull trout, and would not likely destroy or adversely modify designated critical habitat for bull trout. Commission staff requested concurrence in staff's conclusion by letter dated March 2, 2006.

60. FWS did not concur with Commission staff's determination that the project is not likely to adversely affect bull trout.⁶⁴ Subsequently, by letter dated October 12, 2006, Commission staff requested formal consultation with FWS on bull trout.

61. On March 14, 2007, FWS issued a BO that concludes that issuing a new license for the project, as recommended by Commission staff, is not likely to jeopardize the continued existence of the bull trout and is not likely to destroy or adversely modify bull trout critical habitat. As part of its BO, FWS included an incidental take statement with four reasonable and prudent measures to minimize incidental take of bull trout along with 14 terms and conditions to implement the measures, and reporting requirements to permit monitoring of the impacts of incidental take. The reasonable and prudent measures and accompanying terms and conditions and reporting requirements are set forth in Appendix D of the license and incorporated into the license through Ordering Paragraph (G).

ESSENTIAL FISH HABITAT

62. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act),⁶⁵ 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)

⁶⁴In the same letter, FWS concurred with staff's determination that relicensing the project would not be likely to adversely affect the bald eagle; however, the bald eagle was subsequently removed from the threatened and endangered species list, effective August 8, 2007. 72 Fed. Reg. 37,346 (July 9, 2007).

⁶⁵16 U.S.C. § 1855(b)(2) (2000).

identified under the Act. Under section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for actions that would adversely affect EFH.⁶⁶ Under section 305(b)(4)(B) of the Act, 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.⁶⁷

63. The Pacific Fisheries Management Council has designated EFH for three species of Pacific salmon: Chinook, coho, and Puget Sound pink salmon.⁶⁸ NMFS included an analysis of the effects of the project on EFH in its BO and concluded that the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters for Chinook and coho salmon, and recommended that the terms and conditions of the incidental take statement included in the BO be adopted as EFH conservation measures. These terms and conditions are set forth in Appendix C of this order and incorporated into the license through Ordering Paragraph (F).

NATIONAL HISTORIC PRESERVATION ACT

64. Under section 106 of the National Historic Preservation Act (NHPA)⁶⁹ and its implementing regulations,⁷⁰ 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 (National Register) and afford the Advisory Council on Historic Preservation (Advisory Council) 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.

⁶⁶16 U.S.C. § 1855(b)(4)(A) (2000).

⁶⁷16 U.S.C. § 1855(b)(4)(B) (2000). 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.

⁶⁸See Pacific Fishery Management Council. 1999. Amendment 14 to the Pacific salmon plan. Appendix A: Description and identification of essential fish habitat, adverse impacts and recommended conservation measures of salmon. Portland, Oregon.

⁶⁹16 U.S.C. § 470 (2000) *et seq.*

⁷⁰36 C.F.R. Part 800 (2007).

65. To satisfy these responsibilities, the Commission executed a Programmatic Agreement (PA) on April 12, 2007, with the Advisory Council and the Washington SHPO. The PA requires Grant PUD to file for Commission approval a final Historic Properties Management Plan (HPMP) within one year after license issuance. Execution and subsequent implementation of the PA demonstrates the Commission's compliance with section 106 of the NHPA. Article 416 requires Grant PUD to implement the PA, and to file its final HPMP with the Commission within one year of license issuance.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES PURSUANT TO SECTION 10(j) OF THE FPA

66. Section 10(j) of the FPA,⁷¹ 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,⁷² to “adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)” affected by the project.

67. In response to our March 28, 2005, public notice that the project was ready for environmental analysis, NMFS, Washington DFW, and FWS collectively filed 53 different recommendations.⁷³ Thirty-one recommendations are outside the scope of section 10(j) and are discussed in the next section.⁷⁴

68. This license includes conditions consistent with the remaining 22 recommendations that are within the scope of section 10(j). These include the following twelve recommendations to develop and implement the following plans or programs: (1) a performance evaluation program for assessing achievement of survival standards for

⁷¹16 U.S.C. § 803(j)(1) (2000).

⁷²16 U.S.C. §§ 661 (2000) *et seq.*

⁷³NMFS filed recommendations on May 27, 2005; Washington DFW filed recommendations on May 27, 2005; and FWS filed recommendations on May 26, 2005.

⁷⁴Interior's recommendations to develop a northern wormwood conservation plan and a rare, threatened, and endangered plant monitoring plan were incorrectly classified in the EIS as within the scope of section 10(j). Plants are not included under the definition of fish and wildlife. We address these recommendations in the next section, and adopt them as license conditions.

salmon and steelhead (see Article 401(a)(1));⁷⁵ (2) annual progress implementation plans describing measures to be implemented for anadromous fish species (Article 401(a)(2)); (3) a habitat plan to restore, for listed and non-listed anadromous fish, habitat in drainages affected by the project (Article 401(a)(3)); (4) a bull trout monitoring plan (Article 401(a)(10)); (5) a Pacific lamprey management plan (Article 401(a)(12)); (6 and 7) a white sturgeon management and conservation aquaculture plan (Article 401(a)(11));⁷⁶ (8) an avian predator control effectiveness monitoring plan (Article 401(a)(6)); (9) an avian protection plan for the project transmission lines (Article 411); (10) a bald eagle perching and roosting tree protection and enhancement program (Article 414); (11) a wildlife habitat management and monitoring program to monitor and address the effects of project-related recreation on wildlife habitats (Article 410); and (12) an aquatic invasive species prevention program (Article 401(a)(22)).

69. The license also includes conditions consistent with the following three recommendations to: (1) implement habitat projects to mitigate for unavoidable salmon and steelhead losses related to project operations (Article 401(a)(3)); (2) measure progress in meeting anadromous fish survival standards (Article 401(a)(2)); and (3) implement flow regimes and river operations specified in the Hanford Agreement (Appendix A, condition 6.3(2); Appendix B, article 1.1).

70. In addition, the license includes conditions that are consistent with the following seven recommendations to: (1 through 4) develop and implement Hatchery and Genetic Management Plans to rear yearling UCR steelhead, yearling UCR spring-run Chinook salmon for release in the UCR basin, yearling summer Chinook salmon, and sockeye salmon;⁷⁷ (5 and 6) update the Priest Rapids Hatchery and Genetic Management Plan to

⁷⁵Article numbers in parentheses refer to the license article that implements the condition. Those measures that refer to Article 401(a) are included in the various appendices to this license and made license conditions pursuant to Ordering Paragraphs (D) (water quality certification conditions in Appendix A), (E) (fishway prescriptions in Appendix B), and (F) and/or (G) (incidental take terms and conditions in Appendices D and E). The cited subsections of Article 401(a) refer to the numbers in the first column of the table in Article 401(a). That table specifies the location of these conditions in the Appendices.

⁷⁶The conservation aquaculture plan is one element of the white sturgeon management plan.

⁷⁷The sockeye salmon plan should include measures for attempting to artificially propagate sockeye salmon smolts.

provide for rearing up to 1,000,000 fall Chinook salmon fry for release in the project reservoirs and for rearing 1,000,000 additional fall Chinook salmon sub-yearling smolts; and (7) evaluate the effect of the fall Chinook salmon hatchery program on mitigating project impacts to fall Chinook salmon.⁷⁸

RECOMMENDATIONS PURSUANT TO SECTION 10(a)(1) OF THE FPA

71. Section 10(a)(1) of the FPA⁷⁹ 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.

A. Agency Recommendations not considered under section 10(j) of the FPA

72. NMFS, FWS, and Washington DFW made 31 recommendations that are not within the scope of section 10(j) because they are not specific measures to protect, mitigate damages to, or enhance fish and wildlife; or are for studies that could have been conducted prior to licensing.⁸⁰ Instead, we consider these recommendations under the broad public-interest standard of FPA section 10(a)(1).

73. The license adopts Washington DFW's recommendations that the licensee establish and convene a fishery forum to address the implementation of measures for bull trout, white sturgeon, Pacific lamprey, and native resident fish (Appendix C, section 1.24). While we do not adopt Washington DFW's request for funding to support its fire suppression efforts on wildlife habitats, we are requiring the licensee to develop a plan to assist Washington DFW in its fire suppression efforts⁸¹ (Article 409). We have included FWS' recommendation to develop a northern wormwood conservation plan

⁷⁸See Article 401(a)(4) for the origin of these conditions.

⁷⁹16 U.S.C. § 803(a)(1) (2000).

⁸⁰18 C.F.R. § 4.30(b)(9)(ii) (2007). The final EIS at table 42 identifies the recommendations the Commission staff did not consider under section 10(j).

⁸¹Article 409 requires the licensee to develop a fire suppression program as part of the project's wildlife habitat management plan.

(Article 412) and a federally listed rare, threatened, and endangered plant monitoring plan⁸² (Article 413). This license incorporates NMFS' recommendations (also submitted in various mandatory conditions) that the licensee: (1) perform non-passage-related actions for salmon and steelhead that are contained in NMFS' BO filed on May 3, 2004⁸³ (Ordering Paragraph (F)); (2) establish a Priest Rapids Coordinating Committee (Priest Rapids Committee) (Appendix C, condition 1.35); (3) submit a performance evaluation report to the Priest Rapids Committee at three-year intervals (Appendix B, article 25); (4) coordinate the design of the performance evaluation program with the development of parallel monitoring or evaluation systems by other hydropower operators in the Columbia basin and the Northwest Power Planning Council⁸⁴ (Appendix B, article 26); and (5) convene a hatchery subcommittee of the Priest Rapids Committee to undertake and oversee the planning and implementation of the Hatchery Plans for rearing juvenile salmon and steelhead at hatcheries located throughout the mid-Columbia Basin (Appendix C, condition 1.24).

74. The numbers of adult Pacific lamprey entering the Columbia River have declined over the past 30 to 40 years. Lamprey are an important cultural resource to many tribes inhabiting the Columbia River Basin and they are the target of restoration efforts by state and federal agencies. Through conditions included in the water quality certification, this license requires a Pacific lamprey management plan (Article 401(a)(12)) that includes measures to improve upstream adult lamprey passage, monitor upstream adult lamprey passage rates, develop upstream and downstream passage criteria for lamprey, and participate in regional lamprey studies.

75. FWS recommends that the licensee develop techniques to measure juvenile lamprey survival through dams; however, we have not adopted this recommendation because the existing evidence suggests that turbine survival is probably high for juvenile

⁸²Reclamation also recommended the licensee develop and monitor candidate and listed species on Reclamation lands within the project boundary. Rare plants include species identified as candidates for listing as threatened or endangered. Because the plans required by Article 413 will cover all lands within the project boundary, Reclamation's recommendations have been included in the license as well.

⁸³The measures were contained in NMFS' 2004 BO and were thus incorporated into the previous license pursuant to a Commission order issued on December 16, 2004 (109 FERC ¶ 62,216 (2004)). NMFS BO for this proceeding includes measures adapted from the 2004 BO and is included in this license by Ordering Paragraph (F).

⁸⁴Now called the Northwest Power and Conservation Council.

lamprey and the costs associated with developmental research are uncertain, but likely high.⁸⁵ We are not adopting FWS' recommendation that the licensee conduct studies to identify and map juvenile lamprey habitat in the project reservoirs and evaluate effects of reservoir fluctuations on lamprey rearing habitat because there is no evidence that the project affects juvenile habitat within the reservoirs or that the availability of this habitat limits juvenile lamprey production.⁸⁶ We are not adopting FWS' recommendation that the licensee conduct studies to identify the timing of juvenile lamprey outmigration because there is no evidence that the project influences the outmigration timing.⁸⁷

76. FWS also recommends that the Commission retain, through a specific ESA reopener, authority to ensure compliance with the requirements of the ESA. This is not necessary because the Commission's standard reservation of authority (Form L-5, Article 15) can be used to reopen the license to address ESA issues.⁸⁸

77. We are not adopting Washington DFW's recommendation that the licensee track adult lamprey movements within the project boundary because the study would be costly and there is no evidence that the study could identify or distinguish project effects on lamprey movements.⁸⁹ We are not adopting Washington DFW's recommendation that the licensee ensure that adult lamprey passage efficiency achieves the best passage rates that occur at other Columbia River hydroelectric projects because there is no evidence that such a standard is biologically necessary or appropriate.⁹⁰ We are not adopting Washington DFW's recommendation that the licensee develop and implement a resident fish mitigation and enhancement plan to support a recreational fisheries program because this measure would not benefit resident fish or recreational resources in the project area and efforts to stock resident fish in the project area would likely be unsuccessful and conflict with ongoing fisheries management efforts for other fish species.⁹¹ We are not adopting Washington DFW's recommendation that the licensee provide annual funding

⁸⁵EIS at 208 and 448-49.

⁸⁶*Id.* at 200-14 and 448-49.

⁸⁷*Id.* at 200-14 and 449.

⁸⁸*See Avista Corporation*, 93 FERC ¶ 61,116, at pp. 61,330-31 (2000).

⁸⁹EIS at 200-14 and 447.

⁹⁰*Id.* at 200-14 and 451-52.

⁹¹*Id.* at 223-27 and 454-55.

to Washington DFW for a sturgeon biologist,⁹² a lamprey biologist,⁹³ and an aquatic invasive species inspector,⁹⁴ because the Commission does not require licensees to fund employment of state or federal fish and wildlife agency personnel, but rather prefers specific measures that directly benefit fish and wildlife resources.⁹⁵ As discussed below, the license requires a number of measures to improve conditions for the Pacific lamprey.

78. Washington DFW recommended that the licensee provide funding for (1) operation and maintenance of Washington DFW wildlife area lands; (2) acquisition and management of lands to replace lost wildlife values due to development at Crescent Bar; (3) big game, waterfowl and upland habitat improvement projects at the Royal Lake Excavation project; (4) a Crab Creek Water Diversion Project; (5) a Lower Crab Creek Farm Ground Renovation project; and (6) acquisition of additional wildlife resource lands from willing sellers to protect wildlife and recreational values of lands purchased as mitigation for original construction impacts and to preserve quality habitats in the face of increasing recreation development pressures. We are not including these measures in the license because they might be applied to lands well away from the project and would have no nexus to project effects and project purposes, and thus are contrary to Commission policy.⁹⁶ Instead, this license includes measures to protect and enhance wildlife resources affected by continued operation of the project, including protecting remaining habitats at Crescent Bar (Article 419); identifying and implementing wildlife habitat improvement projects that focus on shrub steppe, riparian and wetland habitats within and immediately adjacent to the project because these are the resources most directly affected by the project (Articles 409 and 410); and coordinating the development of recreation, shoreline management and wildlife habitat management efforts in order to limit the effects of dispersed recreation on sensitive habitats (Articles 409, 410, 418, and 419).

79. Washington DFW also recommended that Grant PUD: (1) fund three law enforcement positions (two Washington DFW law enforcement officers and one full time sheriff) in the project area; (2) fund the purchase of a Washington DFW boat and trailer now and on a 10-year replacement cycle; and (3) convene an annual law enforcement

⁹²*Id.* at 214-22 and 453.

⁹³*Id.* at 200-14 and 452-53.

⁹⁴*Id.* at 474-75.

⁹⁵*See Portland General Electric Co.* 117 FERC ¶ 61,112, at P 83 (2006).

⁹⁶*Id.* at 223-27 and 456-58.

coordination meeting to discuss protection of project resources, including fish and wildlife law enforcement.⁹⁷ The license does not include these recommendations. The Commission is concerned with protecting resources and uses at the project, not with funding enforcement personnel and equipment, since the responsibility for enforcing any measures to protect resources rests with the licensee, whether it enforces these measures itself or delegates enforcement responsibilities to law enforcement personnel.⁹⁸

B. Other 10(a) Recommendations

Additional Measures for Salmon and Steelhead

80. This license includes measures specified in the Salmon Agreement that will improve the survival of migrating juvenile and adult salmon and steelhead in the project area, restore and increase salmon and steelhead habitat in the mid-Columbia region, supplement juvenile salmon and steelhead abundance via stocking of hatchery-reared fish, and fund and implement a no net impact fund. The combined goal of these mandatory measures is to mitigate for adverse effects on salmon and steelhead from the operation and maintenance of the Priest Rapids Project. Additional measures recommended by entities that did not sign the Salmon Agreement are discussed below.

81. CRITFC recommends that the licensee be required to adopt and achieve a 91.5 percent passage survival standard that includes both direct and indirect juvenile salmon downstream mortality through the reservoir, dam, and tailrace. We are not adopting this standard because tailrace mortality cannot be accurately measured at each dam and it is not evident that this standard would provide any greater benefit to salmon and steelhead than the standard included in the Salmon Agreement.⁹⁹

82. CRITFC recommends that the licensee achieve various passage efficiency¹⁰⁰ standards in addition to achieving the survival standards that it recommends. While we expect that the measures implemented through this license will increase passage

⁹⁷*Id.* at 258-56 and 456-58.

⁹⁸*See Portland General*, 117 FERC ¶ 61,112 at P 83.

⁹⁹EIS at 428. The Salmon Agreement includes a 93 percent survival standard that includes direct and indirect juvenile salmon downstream passage mortality through each dam and reservoir, but not the tailrace.

¹⁰⁰Passage efficiency is measured as the proportion of fish that pass a dam via non-turbine routes.

efficiencies, we conclude that there is no biological basis for the standards recommended by CRITFC or any certainty that they are achievable short of shutting down the project turbines.¹⁰¹

83. CRITFC recommends that the licensee achieve a median upstream passage time for adult salmon and steelhead of 24 hours through each dam. CRITFC's proposed standard is based on a comparison of passage rates measured at the project with passage rates measured at other Columbia River dams; however, there is no biological basis for a specific median passage time of 24 hours. Because measures included in this license will improve upstream passage conditions and decrease passage times for adult salmon and steelhead, we find there is no need to require CRITFC's proposed upstream passage standard.¹⁰²

84. CRITFC and Alaska DFG recommend that the licensee install PIT tag detection equipment at Wanapum dam to estimate fallback rates and smolt-to-adult survival rates. Because other factors such as natural mortality, harvest, and straying would confound the ability to estimate fallback using PIT tag detection and because smolt-to-adult survival can be estimated using PIT tag detection equipment that is already installed and operational at Priest Rapids dam, we are not adopting this recommendation.¹⁰³

85. CRITFC recommends that the licensee develop a measures-based upstream passage and fallback assessment and implementation plan that would include various studies and measures to assess and reduce project effects on upstream passage of salmon and steelhead. Upstream passage success and rates at the Priest Rapids Project are comparable to other mid-Columbia River projects and will improve with implementation of measures and monitoring required by this license. We conclude that there is no need for development of the measures-based plan recommended by CRITFC.¹⁰⁴

86. CRITFC recommends that the licensee be required to study the effects of peaking operations on juvenile and adult fish passage through the project dams. However, there is

¹⁰¹EIS at 428-29.

¹⁰²*Id.* at 429.

¹⁰³*Id.* at 430.

¹⁰⁴*Id.* at 430-31.

no evidence that peaking operations adversely affect fish passage and this license requires various measures that will improve both upstream and downstream passage conditions.¹⁰⁵

87. CRITFC recommends that the licensee index-test all individual project turbines to identify peak efficiency ranges and operate the project turbines at near-peak efficiency to maximize fish passage survival. This license includes a requirement to operate the project turbines in “fish mode,” which is a mode of operation developed by Grant PUD based on actual measurements of survival of fish passing through the project turbines. We conclude that operating the turbines based on actual measured survival data would be more effective at maximizing survival than employment of the more tenuous relationship between turbine efficiency and survival; therefore, we are not adopting the recommendation to conduct index-testing.¹⁰⁶

88. CRITFC and Alaska DFG recommend that the licensee fund improved state-of-the-art facilities at the Priest Rapids Hatchery and all other hatcheries providing salmon and steelhead as mitigation for project effects. This license includes various measures to improve and upgrade facilities at the Priest Rapids Hatchery and stock specific numbers of juvenile steelhead and four salmon species. To the extent that the licensee can achieve the stocking requirements using existing facilities, we find no need to implement additional upgrades to the Priest Rapids Hatchery or any other hatcheries that would be used for rearing juvenile salmon and steelhead.¹⁰⁷

89. CRITFC recommends that the licensee contribute funding to regional evaluations of salmon stocks, including life-cycle analyses, genetic assessments, stock productivity analyses, and carrying capacity analyses. While these studies would address species affected by the project, they are primarily related to regional salmon and steelhead management and would have little benefit in regard to identifying and mitigating project effects; therefore, we are not adopting this recommendation.¹⁰⁸

90. CRITFC and Alaska DFG recommend that during the spawning period, the licensee should maximize spawning habitat for fall Chinook salmon in the Hanford Reach by basing flow releases on predicted water availability and predicted adult fall Chinook salmon returns. Several factors would limit the licensee’s ability to implement

¹⁰⁵*Id.* at 431-32.

¹⁰⁶*Id.* at 432.

¹⁰⁷*Id.* at 434-35.

¹⁰⁸*Id.* at 436-37.

this measure including: (1) the lack of a defined and verified flow versus spawning habitat relationship for the Hanford Reach; (2) the limited capacity of the project to regulate flow releases from upstream projects and maintain stable releases into the Hanford Reach; (3) the unreliability of predictions of adult salmon returns to the Hanford Reach; and (4) the imprecision of water availability predictions.¹⁰⁹ For these reasons and because fall Chinook salmon population inhabiting the Hanford Reach are the healthiest salmon population in the northwestern United States and this license includes the operations specified in the Hanford Agreement as well as other measures to improve conditions for this species, we are not adopting this recommendation.

91. CRITFC and Alaska DFG recommend that for protection of fall Chinook salmon eggs, alevins,¹¹⁰ and emerging fry in the Hanford Reach, the licensee should base operations and flow releases on annual recommendations made by the agencies, tribes, and other dam operators. Neither CRITFC nor Alaska DFG provided any specific information on how the operations and flows would be selected or how often they would be modified. Because the specific benefits and costs of this recommendation are not estimable and this license includes the operations specified in the Hanford Agreement as well as other measures to improve conditions for fall Chinook salmon, we are not adopting this recommendation.¹¹¹

92. CRITFC and Alaska DFG recommend that the licensee maintain a daily flow fluctuation range of 10 thousand cubic feet per second (kcfs) in the Hanford Reach to reduce stranding and entrapments during the fall Chinook salmon rearing period. Alaska DFG also recommends that if full implementation of the 10-kcfs fluctuation limit is not made part of the new license, the licensee should be required to implement the recommended 10-kcfs fluctuation limit experimentally for several years to collect data that would define tradeoffs between fluctuations and power generation. The 10-kcfs fluctuation limit is narrower than the restrictions specified in the Hanford Agreement, which are included as conditions in this license, and while such a limitation would likely result in lower levels of juvenile fish stranding and entrapments within the Hanford Reach, it would reduce the project's ability to provide regional electrical system support and load-following capability and would reduce annual generation by 1,320 MW. The cost of replacement power would be approximately \$136 million per year. Additionally,

¹⁰⁹*Id.* at 437-38.

¹¹⁰An alevin is a larval salmonid that has hatched but has not fully absorbed its yolk sac, and generally has not yet emerged from the spawning gravel.

¹¹¹EIS at 438-39.

this recommendation would result in increased reservoir fluctuations and would adversely affect other resources, including recreation. The license has adequate measures and given the high cost in lost generation, reduced operational flexibility, and indirect effects on other resources, the restriction requested by CRITFC and Alaska DFG are not warranted.

93. CRITFC and Alaska DFG recommend that the licensee conduct aerial orthophotographic¹¹² surveys at all known spawning areas within the Hanford Reach during the spawning season to help quantify the progression, extent, and geographic location of fall Chinook salmon redds within the Hanford Reach. While this recommendation could provide information useful for monitoring spawning in the Hanford Reach, this license includes aerial and on-the-ground surveys to determine the progression, extent, and location of spawning within the Hanford Reach. We conclude there is no justification for the greater level of detail and precision provided by an orthophotographic survey.¹¹³

94. CRITFC, Alaska DFG, and the Umatilla recommend that the licensee monitor and study the effects of Hanford Reach flow fluctuations on spawning behavior, redd placement, spawning time (within-day), and the extent of deep-water spawning. CRITFC, Alaska DFG, and Umatilla did not provide any evidence that flow fluctuations adversely affect spawning salmon in the Hanford Reach. Additionally, the fluctuations that occur within this reach are not entirely attributable to the Priest Rapids Projects since they are predicated by the cumulative operations of the seven mainstem dams located within the mid-Columbia River. Based on this information and because this license includes the operations specified in the Hanford Agreement as well as other measures to improve conditions for fall Chinook salmon, we are not adopting this recommendation.¹¹⁴

95. CRITFC recommends that the licensee monitor and evaluate the effects of project operations on primary and secondary production¹¹⁵ in the Hanford Reach. CRITFC

¹¹²An orthophotographic survey requires use of geo-referenced video or photographic equipment to survey and create a photographic map of an area, such as the Hanford Reach. This is an extremely precise (measurements at the sub-meter level) method for identifying the position or location of objects, such as salmon redds.

¹¹³EIS at 441.

¹¹⁴*Id.* at 442-43.

¹¹⁵Primary production is a measure of the biomass produced through photosynthesis (e.g. plants and algae). Secondary production is a measure of the amount of matter produced by organisms that feed on the primary producers (e.g. certain aquatic insects or fish).

indicates that flow fluctuations may influence productivity within the Hanford Reach and limit food availability for juvenile fall Chinook salmon and resident fish. While repeated dewatering from flow fluctuations resulting from the cumulative operations of the seven mainstem dams may result in some reduced primary and secondary production along river margins in this reach, there is no evidence that juvenile salmon or other fish inhabiting the Hanford Reach are food limited, in poor condition, or growing slowly.¹¹⁶ Based on this information, we are not adopting this recommendation.

96. CRITFC and Alaska DFG recommend that the licensee conduct annual surveys to estimate fall Chinook salmon fry entrapment and stranding losses from flow fluctuations in the Hanford Reach. CRITFC and Alaska DFG provided no substantive justification for annual monitoring and this license includes three years of entrapment and stranding monitoring during 2011, 2012, and 2013, for comparison to similar data collected prior to implementation of the Hanford Agreement.¹¹⁷ Based on this information, we conclude that there is no need for additional monitoring and we are not adopting the recommendation for annual monitoring.

97. The Alaska DFG recommends that the licensee be required to meet the survival standards included in the Salmon Agreement for all anadromous salmonid species by 2013. This license includes the Salmon Agreement, which specifies that the licensee shall “make steady progress” towards achieving the survival standards, including implementing additional approaches and methodologies throughout the license term or until the standards are met. We believe this requirement strikes an appropriate balance and we therefore decline to impose the more stringent timetable requested by Alaska DFG.¹¹⁸

98. Alaska DFG and the Umatilla recommend that spawning flows within the Hanford Reach should be set based on spawning surveys conducted at White Bluffs¹¹⁹ instead of at Vernita Bar. Alaska DFG and Umatilla provided no indication why the Vernita Bar location is inadequate for conducting spawning surveys other than to state that the White Bluffs area is the primary fall Chinook spawning area within the Hanford Reach. This

¹¹⁶EIS at 443.

¹¹⁷*Id.* at 443-44.

¹¹⁸*Id.* at 429-30.

¹¹⁹The White Bluffs area is located within the Hanford Reach downstream of Vernita Bar. Similar to Vernita Bar, the White Bluffs area is a significant spawning area for fall Chinook salmon.

license requires monitoring specified in the Hanford Agreement that includes on-the-ground surveys of spawning at Vernita Bar and aerial surveys of the Hanford Reach to locate and count redds in other areas, including the White Bluffs. Because the White Bluffs area will be monitored via aerial surveys and there is no apparent benefit to conducting on-the-ground surveys at White Bluffs in place of Vernita Bar, we are not adopting this recommendation.¹²⁰

99. The Umatilla recommend that the licensee provide unspecified spillway flows for adult salmon and steelhead fallback and kelt¹²¹ passage during the time when spillway flows would not be provided. This license includes provisions for fallback and kelt passage that are included in the Salmon Agreement, including spillway flows from April through the end of July or early August (depending on juvenile run timing). These spillway flows correspond to the entire period when kelts will be present and most of the period when fallback of adult salmon and steelhead might occur. This license also includes a condition for the release of sluiceway flows from August (when spillflows for downstream juvenile fish passage ends) through November 15, which will provide fallback passage for portions of the fall Chinook salmon and steelhead runs. The Umatilla provided no indication why sluiceway flows during this period would be inadequate for providing fallback passage other than to indicate that sluiceway flows are only a small fraction of the flows released via the spillways. We conclude that the combined use of spillway and sluiceway flows, as required by this license, would provide adequate alternative routes to turbine passage for salmon and steelhead fallbacks and kelts.¹²²

100. American Rivers indicates that it supports the use of spillway and sluiceway flows to provide fallback and kelt passage routes; however, it states that the licensee should conduct studies of adult fallback and kelt passage survival. In support of this recommendation, American Rivers did not provide any evidence to suggest that adult downstream passage mortality through spillways and sluiceways is high or undesirable; rather, they indicated that the study was needed to address a substantial information gap. American Rivers did not recommend any methods for measuring adult downstream passage survival; and techniques that are commonly used in survival studies (including telemetry, balloon tag recovery, and recovery netting) are infeasible or unreliable due to

¹²⁰EIS at 441-42.

¹²¹A kelt is an adult steelhead that has survived spawning and is returning to the ocean.

¹²²EIS at 431-32.

the size of the fish or the inability to directly observe individual fish condition after passage. Because there is no evidence that spillway and sluiceway survival is poor and there is no apparent method for accurately measuring adult salmon and steelhead survival through spillways and sluiceways, we are not adopting this recommendation.

101. Yakima County indicates that, due to the cumulative effects of project operations on the Hanford Reach, the lower Yakama River is the only feasible location for mitigating project effects on fall Chinook salmon; therefore, it recommends that the licensee increase fall Chinook salmon habitat in the lower Yakama River. This license includes provisions of the Salmon Agreement that will mitigate for all project effects on fall Chinook salmon; therefore, there is no need to require additional habitat mitigation in the lower Yakama River and we are not adopting this recommendation.¹²³

102. For the reasons specified above, we are not including these salmon and steelhead measures in this license. We conclude that the measures proposed in the Salmon Agreement and Hanford Agreement, the salmon and steelhead measures required by the water quality certification and section 18 prescriptions, and the additional salmon and steelhead measures stipulated in the BOs and recommended by staff that we are requiring (Articles 402 through 406; gatewell exclusion, tailrace pumping, fishery operations plan, Wanapum tailrace habitat modification, Wanapum gate seal), provide adequate and appropriate protection, mitigation, and enhancement for salmon and steelhead at the Priest Rapids Project, and that additional measures are not warranted.

Passage Standards for Pacific Lamprey

103. CRITFC recommends that Grant PUD pursue actions to achieve 80 percent dam passage effectiveness for adult lamprey by 2013 and 97 percent dam passage effectiveness by 2030. CRITFC has provided no basis or justification for these standards.

104. In evaluating these standards, staff concluded that there is no information in the record to indicate that these passage levels are biologically necessary or ultimately achievable and we adopt staff's recommendation against adopting them.¹²⁴ As part of the Pacific lamprey management plan included in the water quality certification (Appendix A), Grant PUD will implement fishway modifications that are intended to improve upstream passage of adult lamprey. Additionally, the water quality certification requires Grant PUD to develop adult lamprey passage criteria that consider passage success at other Columbia River hydroelectric projects. This requirement demonstrates

¹²³*Id.* at 444-45.

¹²⁴*Id.* at 203-04 and 450.

that, at this time, passage requirements for adult lamprey are not fully understood and there are no widely accepted upstream passage standards for adult lamprey. Because Grant PUD will be implementing measures to improve upstream passage and developing passage standards, we conclude that the passage standards recommended by CRITFC are unsupported and premature at this time, and therefore, we are not including them in this license.

105. Additionally, CRITFC recommends that Grant PUD be required to meet downstream passage standards that are currently being developed by regional fisheries managers for juvenile lamprey. CRITFC provided no evidence to indicate that current conditions for juvenile lamprey passage are inadequate and did not provide any additional specifications (i.e., parameters or quantification) regarding these standards. Because these standards are currently in development, we are unable to evaluate the cost and benefit of them and we are not including them in this license. However, should these standards be completed, they could be considered for inclusion in the new license through the standard fish and wildlife reopener article (Form L-5, Article 16).

Resident Fish

106. CRITFC recommends that Grant PUD conduct a population analysis of resident fish stocks in the project reservoirs and determine what impact the northern pikeminnow removal program is having on resident fish. CRITFC suggests that, because pikeminnow are the major predator of resident fish that consume white sturgeon eggs, removal of northern pikeminnow will increase resident fish numbers and indirectly increase predation of sturgeon eggs. CRITFC does not specify which species are considered sturgeon egg predators and might thus benefit from the pikeminnow removal program.

107. Staff found no specific evidence to indicate that predation is a significant source of sturgeon egg mortality or that the pikeminnow removal program is increasing predation of white sturgeon eggs.¹²⁵ Staff estimated the cost of the CRITFC-recommended study at \$200,000 per year and concluded that even if the study were conducted over multiple years, it would be unlikely to distinguish the effects of pikeminnow removal on resident fish abundance from the influence of other factors such as annual variation in river hydrology and water temperatures.¹²⁶ Because there is no evidence that pikeminnow removal indirectly results in increased predation on white sturgeon eggs, the recommended study is likely to provide inconclusive results. We therefore decline to adopt this recommendation.

¹²⁵*Id.* at 223-27.

¹²⁶*Id.* at 455-56.

Fishery Operations Plan

108. CRITFC recommended that Grant PUD develop a detailed fishery operations plan to address turbine operations; spillgate inspections; bypass system operations and inspections; and fishway operations, inspections, and modifications. Development of such a plan will consolidate all fisheries-related operational protocols and inspection procedures into a single document, which will simplify future reviews and updating. Therefore, Article 404 requires Grant PUD to file a fishery operations plan with the Commission for approval.

Flood Control

109. Article 34 of the original license required Grant PUD, as directed by the District Engineer of the U.S. Army Corps of Engineers (Corps), to make available in the Priest Rapids and Wanapum reservoirs, storage space necessary to compensate for valley storage that may be lost when refilling the reservoirs' storage space during the flood season (between May 15 and June 30). Article 35 of the original license required Grant PUD, as might be requested by the Corps, to provide for flood control storage space up to 500,000 acre-feet in addition to the compensation for valley storage required by Article 34.

110. The Corps states that this storage is intended for very large floods, and that although extensive upstream storage development has reduced the frequency of such floods, they may still occur. It therefore recommends that the requirements of Articles 34 and 35 be included in the new license. We do so in Articles 301 and 302.

Erosion and Sediment Control Plan

111. NMFS' BO includes a reasonable and prudent measure for Grant PUD to prepare and carry out a pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Article 303, *Contract Plans and Specifications* requires the licensee to prepare and file this plan as well as other preconstruction requirements such as a Quality Control and Inspection Program, and Temporary Construction Emergency Action Plan.

Tailrace Pumping at the Priest Rapids Fishways

112. Grant PUD is proposing to modify the water supply for the Priest Rapids fishways by replacing a portion of the water supply to the ladders that comes from the gravity intake gate with water that would be pumped from the tailrace. Grant PUD suggests this would provide a slightly cooler water source (approximately 0.3 degrees Centigrade

cooler) in addition to reducing generation losses from releasing forebay waters into the project fishways. We agree and Article 403 requires Grant PUD to file a plan for installing and operating a tailrace pumping system.¹²⁷

Gatewell Exclusion Screen Study

113. In the license application, Grant PUD proposed to install gatewell exclusion screens in order to make unnecessary its ongoing program of retrieving trapped juvenile salmon and steelhead from the gatewells. Installation of the exclusion screens would prevent fish from becoming trapped within the gatewells and all fish entrained in the penstock flows would pass directly from the penstock through the turbines. Installation of the screens may increase juvenile salmon and steelhead survival for fish that would have become trapped, since it is likely that turbine passage survival is higher than survival of fish that are netted from the gatewell and subsequently transported and released into the tailrace. However, the state and federal agencies and CRITFC have indicated that the effects of gatewell exclusion screens on juvenile salmon and steelhead and lamprey are unknown and injuries or impingement could occur as fish pass near or across the surface of the screens. Therefore, Article 402 requires Grant PUD to prepare a plan for studying the effects of installing gatewell exclusion screens on salmon, steelhead, and lamprey.

Memorandum of Agreement between the Licensee and the Wanapum Indians

114. The Wanapum are the descendants of the several native families that were living in their traditional village at Priest Rapids when the project was constructed. Their village was relocated to a site on the west bank at the base of the Priest Rapids dam. The village is accessible only by driving across the top of the dam and is opened periodically to friends of the Wanapum and other non-resident Wanapums for traditional activities.¹²⁸

115. In a letter filed May 2, 2006, the Wanapum expressed concern that Commission staff's draft EIS was, in its view, intending to incorporate all Wanapum cultural resource issues into a proposed historic properties management plan for the new license, and ignoring an earlier 1957 agreement between the Wanapum and Grant PUD that was part of the original license (Article 42).¹²⁹ As a consequence, the Wanapum requested that we

¹²⁷*Id.* at 109-10 and 404.

¹²⁸License Application, Vol. 6 at E8-28.

¹²⁹Grant PUD also wrote a similar letter, dated May 2, 2006, citing agreement with the Wanapum.

create a separate license article to address cultural resource issues involving Grant PUD's original commitment to the Wanapum as expressed in the original 1957 Memorandum of Agreement (MOA) between them, and subsequent modifications to it, under the original license. As expressed by both Grant PUD and the Wanapum, this article would involve the crafting of a new MOA that would be separate from the historic properties management plan. Commission staff addressed this concern in its final EIS,¹³⁰ and recommended that any new license require Grant PUD to execute a new MOA with the Wanapum, based on the 1957 agreement. Article 417 requires Grant PUD to execute and file a new MOA with the Wanapum within six months after license issuance.

Priest Rapids Recreation Resource Management Plan

116. To enhance recreation resources at the project, Grant PUD proposes to improve recreation facilities as described in its Recreation Resource Management Plan dated August 2003, and identified as Exhibit E7 of its license application filed October 29, 2003. The plan identifies measures for recreation sites located within or adjacent to the existing project boundary. At the Wanapum development, there are 23 developed and undeveloped recreation sites, including boat launches, campgrounds, picnic areas, and the Wanapum Dam Heritage Center, located at the dam. At the Priest Rapids development, there are 12 developed and undeveloped recreation sites, including boat launches, campgrounds, and picnic areas. Of these 35 total recreation sites, 23 recreation sites are project-related and located within the project boundary, including the Crab Creek Corridor. Grant PUD's plan also includes funds for agency personnel to perform certain duties, as well as proposals to develop a new recreation site (Airstrip Site) on Grant PUD-owned lands, and improve the Wanapum Recreation Area, which is part of Washington State Ginkgo/Wanapum State Park operated by Washington State Parks and Recreation Commission. Both sites are located adjacent to the project boundary.¹³¹

117. In the EIS, staff recommended measures for the 23 in-boundary recreation sites that would result in a significant improvement to recreation opportunities.¹³² These measures would enhance recreational use at the project and contribute to a cumulative beneficial effect on recreation resources within the mid-Columbia River basin.

¹³⁰EIS at 302, 410, and 421-22.

¹³¹The proposed Airstrip Site is a fall and winter waterfowl concentration area and is designated by the Washington DFW as a high quality riparian habitat. Washington DFW designates the Wanapum Recreation Area as a high quality shrub-steppe Priority Habitat.

¹³²EIS at 423-27.

Therefore, Article 418 requires the licensee to implement its Priest Rapids Recreation Resource Management for the 23 recreation sites located within the Priest Rapids Project boundary. We also include in Article 418 provisions for the licensee to: (1) evaluate the Airstrip Site and/or Wanapum Recreation Area to discern whether the site(s) should be developed for recreation due to sensitive species and associated habitats; and (2) evaluate whether Wanapum dam boat launch (lower) should be closed due to public safety concerns.

118. Reclamation recommended that Grant PUD develop and implement a recreation plan on 1,874.8 acres of Reclamation-administered lands within the project boundary to protect terrestrial resources at Sand Hollow-North, in the vicinity of Wanapum dam, and along Crab Creek. A provision of Reclamation's recommended plan would exclude off-road vehicle use in these areas to minimize the effects of recreational use on the environmental and cultural resources.

119. In the EIS, staff adopted, in part, Reclamation's recommendation for the licensee to develop and implement a recreation plan on these Reclamation-administered lands.¹³³ However, a separate recreation plan is not necessary because Grant PUD is required to implement a Priest Rapids Recreation Resource Management Plan (Article 418) that would take into account the Reclamation-administered lands. A provision of this plan is to exclude off-road vehicle use in these areas.

120. BLM recommended that the licensee monitor recreation use on an estimated 749 acres of BLM-administered lands that are located within the project boundary. In the EIS, staff determined that this recommendation was reasonable due to the potential for increased recreational use at the project.¹³⁴ Grant PUD will monitor recreation use at the Priest Rapids Project, which includes BLM land within the boundary, every 6 years through the filing of a licensed hydropower development recreation report (FERC Form 80), required by section 8 of the Commission's regulations.¹³⁵

121. Staff does not adopt some measures at the recreation sites because sufficient measures at the project are required in this license to satisfy project purposes. Although Grant PUD proposes to provide funds for agency personnel to perform certain duties, staff found that providing such funds is not the responsibility of a licensee in the context

¹³³*Id.* at 334.

¹³⁴*Id.* at 336.

¹³⁵18 C.F.R. § 8.11 (2007).

of a Commission license and is not required to fulfill the project's purposes.¹³⁶ In general, the Commission is concerned with protecting resources and having specific enforceable provisions towards that end rather than requiring a licensee to provide funding for agency personnel.¹³⁷ Nevertheless, we do not object to a licensee entering into any off-license agreement with an entity.

Additional Recreation Measures

122. Pat Kelleher, a local resident, recommends that Grant PUD: (1) purchase Kittitas County land holdings and include such holdings for recreation; (2) purchase land from Reclamation, extending the project boundary to State Route 26, and develop a day-use site at Reclamation's Sand Hollow-North site; (3) include Wanapum State Park, located about 4 miles upstream from Wanapum dam, in the license and require Grant PUD to operate and maintain it, rather than Washington State Park due to Washington State Park's budget constraints; and (4) acquire public access road rights from Huntzinger Road to the proposed Airstrip Site through Washington Department of Transportation-owned property and develop the site as a day-use area.

123. In the EIS, the staff noted that Pat Kelleher did not provide any information to support his recommendations. Commission staff determined that requiring the licensee to include these sites, along with the recreation facilities identified in Mr. Kelleher's filing, is not warranted because sufficient recreation measures are already required in the license to satisfy project purposes.¹³⁸ These measures, therefore, are not made part of the license issued for the project.

Crescent Bar Island

124. Crescent Bar Island is situated within the Wanapum reservoir, approximately 20 miles upstream from Wanapum dam. The island, owned by Grant PUD, is approximately 160 acres and is located within the project boundary. A series of leases (since 1962) and sub-leases issued by Grant PUD under Article 25 of the existing license¹³⁹ enabled private and public facilities to be constructed on Crescent Bar Island.

¹³⁶See 116 FERC ¶ 61,270 (2006).

¹³⁷See *Portland General*, 117 FERC ¶ 61,112 at P 83.

¹³⁸EIS at 337-38.

¹³⁹Article 25 is a standard land use article that was incorporated into the existing license. It is set out at 16 FPC 1121 at 1126 (1956).

The most recent lease terminates in 2012, but has a clause to extend it to 2023, subject to Commission approval.

125. Certain sub-leaseholders asserted, under the existing license, that public use of the leased lands would be inconsistent with their existing property interests and that because these lands serve no project purposes, the lands should be excluded from the project boundary. The parties argued that exclusion of the lands would impair neither public recreation nor environmental resources protection.

126. In 1999, the Commission found that the lands are needed for project purposes of flowage, public recreation, and aesthetic values, and should remain in the project boundary. The Commission further found that the lease agreements issued by Grant PUD to private individuals are subject to the terms and conditions of the project license. In light of these findings, the Commission stated that, during the relicensing process, the matter would be revisited.¹⁴⁰ As discussed below, the staff revisited the matter in its EIS.

127. Crescent Bar Island is designated as a Washington DFW Riparian Priority Habitat and provides habitat for wintering bald eagles.¹⁴¹ Grant PUD's proposed shoreline management plan would allow for additional development (e.g. marinas, docks, a trail, and residential lawn areas). In the EIS, staff found that, with the exception of the proposed trail, further development on the island could potentially result in adverse effects, such as habitat fragmentation and loss of riparian habitat and associated species, potential exclusion of public access to project lands and waters, and potential adverse effects on juvenile Chinook salmon that use near-shore habitat.¹⁴² The proposed 5.5-mile-long trail would be located primarily in already disturbed areas. Crescent Bar Island is necessary for project purposes of flowage, public recreation, and aesthetic values. Based on the potential effects from further development, staff concluded that no further development on Crescent Bar Island should occur beyond the existing disturbed footprint (except for the proposed 5.5-mile-long non-motorized trail).¹⁴³

128. Article 419 requires the licensee to develop and implement a final Shoreline Management Plan that includes a provision for protecting and enhancing Crescent Bar Island by stipulating no further development on the island beyond the existing disturbed

¹⁴⁰88 FERC ¶ 61,012; *reh'g dismissed*, 89 FERC ¶ 61,177 (1999).

¹⁴¹EIS at 235.

¹⁴²*Id.* at 358 and 426.

¹⁴³*Id.* at 427.

footprint (except for the proposed trail mentioned above that the licensee, after consultation with interested parties, would develop and maintain). The final Shoreline Management Plan allows flexibility, under the conservation land use classification, to further define the existing disturbed footprint.

Funds for Trails

129. Grant PUD proposed to contribute funds toward rehabilitating the existing, abandoned 0.5-mile-long Beverly Bridge (part of the 300-mile-long, cross-state John Wayne Pioneer Trail), finding that such funds could assist Washington DNR and the Washington Recreation and Conservation Office's efforts to reconnect the trail. In the EIS, the staff did not recommend the measure because the Beverly Bridge and trail are not associated with the Priest Rapids Project. This license requires the development of an estimated 17 miles of trails at the project (Crescent Bar, 5.5 miles; Frenchman's Coulee, 1 mile; Mattawa-Desert Aire, 3.1 miles; and Crab Creek Corridor, 7.4 miles) to meet the current and future recreation needs.¹⁴⁴ For these reasons, we are not making Grant PUD's proposal a condition of the license. However, Grant PUD is free to support the upkeep of the Beverly Bridge or similar facilities as an off-license matter.

PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

130. In 1980, Congress enacted the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act).¹⁴⁵ 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 has adequate, efficient, economical, and reliable power supply.¹⁴⁶ Section 4(h)(11)(A) of the Northwest Power Act¹⁴⁷ 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

¹⁴⁴*Id.* at 459-60.

¹⁴⁵16 U.S.C. § 839(b) (2000) *et seq.*

¹⁴⁶16 U.S.C. § 839(b)(h)(5) (2000).

¹⁴⁷16 U.S.C § 839(h)(11)(A) (2000).

the Council's Program into account "at each relevant stage of decision-making processes to the fullest extent practicable."

131. 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). Consistent with the applicable provisions of the Program as discussed in the EIS,¹⁴⁸ the license, among other things, includes pollution and erosion control plans (Article 303); salmon and steelhead conservation measures (Article 401(a)(1), Article 401(a)(3), and Article 401(a)(4)); enhancements to Columbia River fishery habitats (Ordering Paragraph (D)) and Article 405 (habitat modification in Wanapum tailrace)); fishway prescriptions (Ordering Paragraph (E)); enhancing area resident fisheries (Article 401(a)(13) and Article 407 (Crab Creek/Burkett Lake Enhancement Plan)); and wildlife habitat improvements (Articles 409 through 414). 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 project is not located within such a protected area. Further, Article 415 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.

OTHER ISSUES

A. Marketing Plan

132. The original license for the project was issued subject to the provisions of Pub. L. No. 83-544.¹⁴⁹ Section 6 of that Act requires the licensee to offer a "reasonable portion"

¹⁴⁸EIS at 402-80.

¹⁴⁹68 Stat. 573 (1954). Section 6 of the Act states:

To assure that there shall be no discrimination between States in the area served by the project, such license shall provide that the licensee shall offer a reasonable portion of the power capacity and a reasonable portion of the power output of the project for sale within the economic market area in neighboring States and shall cooperate with agencies in such States to insure compliance with this requirement: *Provided*, That in the event of disagreement between the licensee and the power marketing agencies (public or private) in any of the other States within the economic market area, the Federal Power Commission may determine and fix the applicable portion of power capacity and power output to be made available hereunder and the terms applicable thereto.

of the power capacity and a reasonable portion of the power output of the project for sale within the economic market area in neighboring states. In the event of disagreement over such portions, the Commission “may determine and fix the applicable portion of power capacity and power output to be made available...” and the terms applicable thereto. Pursuant to the original license, Grant PUD sold 63.5 percent of the project power to other utilities under uniform long-term agreements, and retained 36.5 percent for its own use.¹⁵⁰

133. The question of whether, and how, these provisions would be considered on relicensing was addressed in *Kootenai Electric Cooperative, et al. v. P.U.D. No. 2 of Grant County, WA*, where the Commission determined that the provisions of Pub.L. No. 83-544 apply “after issuance of a new license as well as from the issuance of the original license.”¹⁵¹ The Commission held that any future license would require the licensee to make 30 percent of the project's firm power and 30 percent of its non-firm power¹⁵² available to the parties who were involved in the Commission’s *Kootenai* proceeding (referred to as preference parties).¹⁵³ Thus, Grant PUD or any other new licensee was required to make the 30 percent allocation available pursuant to a non-discriminatory, market-based mechanism that gives the preference parties a preference in

¹⁵⁰Contracts for Priest Rapids power expired on October 31, 2005, and contracts for Wanapum power expire on October 31, 2009. The reason for the different time frames is that the Wanapum development was not completed until four years after Priest Rapids came on line.

¹⁵¹*Kootenai Electric Cooperative, et al. v. P.U.D. No. 2 of Grant County, WA*, 72 FERC ¶ 61,222 at 62,031, *reh'g denied*, 73 FERC ¶ 61,307 (1995).

¹⁵²Firm power is the amount of generation that can be relied upon even during the driest years (i.e., during “critical water” years). Non-firm power is all additional generation that might occur during years in which more water is available. Firm power remains relatively constant, while non-firm power varies with changing non-power requirements such as fish flows and spills, or with changing plant operating characteristics.

¹⁵³*Kootenai Electric Cooperative, et al. v. P.U.D. No. 2 of Grant County, WA*, 82 FERC ¶ 61,112, *reh'g denied*, 83 FERC ¶ 61,289 (1998), *aff'd*, *Kootenai Electric Cooperative, et al. v. FERC*, 192 F.3d 144 (D.C. Cir. 1999) (Kootenai orders). The parties involved in the Kootenai proceedings consist of the original 12 purchasers under the existing license, plus ten utilities serving customers in Idaho.

the bidding.¹⁵⁴ The Commission then required Grant PUD, or any other applicant, to file a marketing plan with its relicense application.

134. Grant PUD's license application includes the required marketing plan.¹⁵⁵ Under Grant PUD's proposal, approximately six percent of project power would be initially offered by auction on a market-wide basis to qualified utilities and power marketers. The highest bidder would receive the auctioned power and the winning bid would set the market price for the preference parties.¹⁵⁶ Each preference party, should it elect to purchase power at the winning bid price, would receive a share of the available reasonable portion representing its requested amount in relation to the total requests by all of the preference parties.¹⁵⁷

135. As we understand the plan, each preference party has an option to purchase an allocation of the reasonable portion power on a year-ahead basis. The price it will pay is subsequently determined by the auction. The amount of power auctioned from year-to-year to establish the market price will depend on how many preference parties elect to purchase an allocation and how much power each party agrees to purchase. For instance, in a future year auction, the preference parties might elect to purchase only 20 percent of project power, instead of the entire 30 percent reasonable portion. The portion of the

¹⁵⁴*Kootenai Electric Cooperative*, 82 FERC ¶ 61,112 at pp. 61,402-03 (“Accordingly, . . . , we will require all applicants for the new license for the project . . . to file, as part of their applications for the new license, a plan for making available in a fair, equitable and non-discriminatory manner pursuant to market-based principles and procedures, 30 percent of the firm power and 30 percent of the non-firm power from the project between and among the [preference parties].”).

¹⁵⁵The marketing plan is Volume MP of Grant PUD's application. Attachment E to the marketing plan lists the entities that have concurred with the Marketing Plan.

¹⁵⁶Grant County held the auction for the initial contract to be effective November 1, 2005, on July 21, 2005. Thirteen bids were received. *See* gcpud.org/powerauction/default.htm and gcpud.org/aboutus/newsreleases05/news072505Auction/htm. Constellation Energy Commodities Group, Inc. (Constellation), filed the successful bid and, on August 8, 2005, Grant County filed a copy of an executed contract with Constellation.

¹⁵⁷Because the existing contracts for Wanapum power extend to October 31, 2009, only the Priest Rapids portion of the 30 percent reasonable portion is to be sold pursuant to the marketing plan until that date. Thereafter, the marketing plan will apply to power from both developments. Marketing Plan at 4.

reasonable portion not subscribed by preference parties would be auctioned to establish the market price applicable to the preference parties who committed to purchase reasonable portion power that year.

136. In each year, the preference parties, including those who did not elect to purchase reasonable portion power in that year, will receive all of the revenues from the sale of the reasonable portion, less the cost of producing the reasonable portion. They will share the revenues (less costs) in proportion to their contractual allocations, which add up to the reasonable portion (i.e., 30 percent of project power). If the revenue exceeds the cost of production, they will profit. If the revenue is less than the cost of production, they will owe Grant PUD the difference, in proportion to their contractual allocations.

137. All of the preference parties concur with the provisions of the marketing plan.¹⁵⁸

138. Local resident Pat Kelleher filed comments arguing that the marketing plan should not be accepted and proposing a different distribution.

139. Mr. Kelleher states that because Grant PUD receives most of the economic benefits of the project, its retail rates are dramatically lower than those of some other neighboring counties. He contends that the public interest requires the project to be treated as a regional resource, with the economic benefits shared by all of the counties in the project area. To this end, he would have us include a license article requiring Grant PUD to sell most or all of the project power pursuant to a nondiscriminatory market mechanism.¹⁵⁹

140. Mr. Kelleher has not raised any arguments that would change our finding that the plan is consistent with the statute and the Commission's prior orders. We have examined the governing statute, Pub. L. No. 83-544, and the *Kootenai* orders and determined that the marketing plan is consistent with both. The plan complies with the *Kootenai* orders by ensuring that the reasonable portion is sold at a price determined in a competitive market, while providing the preference parties with a meaningful priority to purchase the reasonable portion.

¹⁵⁸Marketing Plan, Attachment E.

¹⁵⁹Comments of Pat Kelleher, filed February 17 and May 3, 2004, and May 17, 2005. Enclosure 2 to Mr. Kelleher's May 17, 2005 filing, which appears to be an excerpt from the 2002 Washington Public Utilities Source Book, indicates that Grant's 2002 retail rates averaged 2.99 cents/kWh, while those of Kittitas County averaged 6.61 cents/kWh.

141. To the extent Mr. Kelleher may be suggesting that we dictate the pricing of Grant PUD's retail power sales, we have no such authority.¹⁶⁰

B. Yakama Agreement

142. On July 11, 2007, Grant PUD and the Yakama jointly filed an offer of settlement (Yakama Agreement). This agreement is mainly intended to resolve issues related to the Yakama's request for an allocation of project power from Grant PUD. However, certain sections of the agreement relate to mitigation for impacts to fish and wildlife and assistance to the Yakama to develop off-site mitigation programs. Grant PUD and the Yakama request that the Commission approve: (1) those portions of the agreement that the Commission deems relevant to any disputed issue associated with the Yakama's comments, recommendations, or contentions about the terms and conditions to be included in the new license for the project; and (2) those provisions of the agreement providing for sale of power after the expiration of its existing license for the project, to the extent that the Commission deems such approval necessary.

143. The Yakama Agreement states that nothing in the agreement shall conflict with the Hanford or Salmon Agreements,¹⁶¹ and that the Yakama will withdraw its prior comments from the relicensing proceeding.¹⁶²

144. Specifically, the agreement provides that Grant PUD will attempt to secure an additional 25 MW of Tier 1 BPA power¹⁶³ above the Yakama high water mark on behalf of the Yakama, and, if unsuccessful in obtaining such power, will retain any contractual rights it has to establish a high water mark under a new purchase agreement with BPA. If

¹⁶⁰See *Yakama v. Grant*, 101 FERC ¶ 61,197 at P 13-19 (2002), *reh'g denied*, 103 FERC ¶ 61,073 at P 11 (2003).

¹⁶¹Yakama Agreement, Part B, subsections 4(a) and (b), and Part C, subsections 5(a) and (b).

¹⁶²*Id.* at subsection 1.

¹⁶³In July 2007, the BPA issued its final long-term regional dialogue policy which includes a tiered rate approach. Tier 1 is the lowest priced power available from BPA. For each public utility customer, there is a High Water Mark (HWM) established, which defines its right to buy power at a Tier 1 rate. The Tier 1 rate will be based on the cost of the existing federal system with very little augmentation. If a public utility chooses to buy more power from BPA beyond its HWM, this power will be sold at a Tier 2 rate set to fully recover BPA's costs of securing additional resources to serve this load.

Grant PUD succeeds with this measure, it will provide the Yakama with 25 MW of project power under the same terms that Grant PUD receives it.¹⁶⁴ The agreement notes that there will be no obligation to make available 25 MW of project power if Tier 1 BPA power is made available to the Yakama.¹⁶⁵

145. The agreement also provides that Grant PUD will provide to the Yakama the equivalent financial benefit of a project power allocation beginning with the execution of the agreement through the year 2015.¹⁶⁶ In 2016, the Yakama have the option to take physical delivery of the power allocation.¹⁶⁷

146. The agreement provides that the parties will cooperatively develop Pacific lamprey and White Sturgeon management plans, and ask the Commission to include as articles language similar to that proposed in the agreement.¹⁶⁸

147. The agreement also notes that the parties each agree to provide the other a right of first refusal in the development of any new generation resource¹⁶⁹ and that Grant PUD will give preference to the Yakama with respect to entering contracts for professional service activities.

148. A protest was filed by the Citizens Standup! Committee (Citizens),¹⁷⁰ arguing that the Yakama have substantial revenue sources from other means and this agreement will

¹⁶⁴Yakama Agreement, Part B, subsection 1.

¹⁶⁵*Id.*

¹⁶⁶Yakama Agreement, Part B, subsection 2.

¹⁶⁷*Id.*

¹⁶⁸Yakama Agreement, Part B, subsections 4(c) and (d), and Part C, subsections 5(d) and (e). Grant PUD and Yakama express a preference that the Commission include as articles of the new license provisions similar or identical to the provisions of Part B, subsections (c) and (d) of the agreement so as to avoid potential conflicts between the agreement and the new license. However, they also agree that if the license and agreement differ, they will work to develop a single plan that complies with the requirements of both the new license and the agreement.

¹⁶⁹*Id.* at subsection 3

¹⁷⁰Citizens describes itself as a non-profit educational resource that networks with similar groups across the State of Washington and within 25 other states.

cause an undue burden on ratepayers outside the Yakama and Grant PUD jurisdictions. It urges the Commission to not approve the agreement and to direct Grant PUD and the Yakama to revisit the agreement and revise it to not affect non-party ratepayers.¹⁷¹

149. We have reviewed the agreement filed by Grant PUD and the Yakama on July 11, 2007, and we find nothing inconsistent between the Yakama Agreement and the Marketing Plan, Pub. L. No. 83-544, and the *Kootenai* orders. As to Citizens' concerns, the Commission does not direct to whom a licensee provides power and cannot set retail rates.¹⁷²

150. With regard to Grant PUD and the Yakama's request that we include as articles of the new license provisions similar or identical to the provisions of Part B, subsections (c) and (d) of the agreement, we decline to do so because the licensee is already required to file Pacific Lamprey and White Sturgeon management plans pursuant to the water quality certification. We expect that Grant PUD and the Yakama will coordinate on those plans.

151. Because the Yakama Agreement had portions that went into effect after the termination date of the existing license and before the issuance of this new license, Grant PUD requested that the Commission approve the relevant provisions pursuant to section 22 of the FPA, if the Commission believed it was necessary.

152. FPA section 22 provides that contracts for the sale and delivery of hydroelectric power for periods extending beyond the termination date of the project's license require Commission approval, pursuant to a public interest standard.¹⁷³

¹⁷¹Letter filed August 10, 2007.

¹⁷²*See New York Power Authority*, 118 FERC ¶ 61,206, at P 73 (2007).

¹⁷³Section 22 of the FPA provides in pertinent part:

That whenever the public interest requires or justifies the execution by the licensee of contracts for the sale and delivery of power for periods extending beyond the date of termination of the license, such contracts may be entered into upon the joint approval of the Commission and of the public-service commission or other similar authority in the State in which the sale or delivery of power is made, . . . and thereafter, in the event of failure to issue a new license to the original licensee at the termination of the license, the United States or the new licensee, as the case may be, shall assume and fulfill all such contracts.

153. It is unclear whether Grant PUD has actually implemented a sale and delivery of power between the expiration of the existing license and the issuance of this license inasmuch as the efforts to be undertaken pursuant to the Yakama Agreement that might require our approval were contingent on the lack of success in obtaining power from BPA. However, to the extent it is necessary, we find it appropriate and in the public interest to approve pursuant to FPA section 22 the relevant portions of the Yakama Agreement entered into by Grant PUD on June 11, 2007, for a term beginning June 11, 2007 and ending on the date this order is issued (Ordering Paragraph (H)).

ADMINISTRATIVE PROVISIONS

A. Scheduling and Reporting Requirements

154. In Appendices A and B, there are certain water quality certification conditions and section 18 prescriptions requiring Grant PUD to: (1) submit plans and reports to Washington Ecology, NMFS, and FWS for approval without also filing these plans for Commission approval; and (2) make certain modifications to project plans, facilities, and operations required by Ecology, NMFS, and FWS without seeking Commission approval. Article 401 requires Grant PUD to also seek the Commission's approval of these plans and to file and obtain Commission approval of applications to amend the license prior to implementing certain mandatory conditions in Appendices A and B.

B. Annual Charges

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

C. Exhibit F and G Drawings

156. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Articles 202 and 203 require the filing of these drawings.

D. Headwater Benefits

157. Some projects directly benefited 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.

E. Review of Final Plans and Specifications

158. Article 303 requires the licensee to provide the Commission's Division of Dam Safety and Inspections Portland Regional Office (D2SI-PRO) with final contract drawings and specifications – together with a supporting design report consistent with the Commission's engineering guidelines.

159. Article 304 requires the licensee to provide the Commission's D2SI-PRO with cofferdam construction drawings.

160. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised drawings of project features as-built. Article 305 provides for the filings of these drawings.

F. Remaining Turbine Upgrades at Wanapum

161. Article 306 requires the licensee to complete the seven remaining turbine upgrades at the Wanapum development as ordered in 108 FERC ¶ 62,075 (2004) (Order Modifying and Approving Amendment of License Application and Revising Annual Charges) and 113 FERC ¶ 62,205 (2005) (Order Authorizing Installation of Remaining Units).

G. Use and Occupancy

162. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 420 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

163. Section 10(a)(2)(A) of the FPA¹⁷⁴ 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.¹⁷⁵ Under section 10(a)(2)(A), federal and state agencies filed 70 comprehensive plans that address

¹⁷⁴16 U.S.C. §803(a)(2)(A) (2000).

¹⁷⁵Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19.

various resources in Washington State. Of these, the staff identified and reviewed 28 comprehensive plans that are relevant to this project.¹⁷⁶ No conflicts were found.

APPLICANT'S PLANS AND CAPABILITIES

164. In accordance with sections 10(a)(2)(C) and 15(a) of the FPA,¹⁷⁷ Commission staff evaluated Grant PUD's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost effectiveness of plans; and (8) actions affecting the public. We accept the staff's findings in each of the following areas.

A. Conservation Efforts

165. Section 10(a)(2)(C) of the FPA requires the Commission to consider the extent of electricity consumption efficiency improvement programs in the case of licensees primarily engaged in the generation or sale of electric power, like Grant PUD. Grant PUD supports regional efforts to improve electric efficiency, both on its own and by participation in the Northwest Energy Efficiency Alliance, whose main goal is to promote more efficient use of electricity in the entire Pacific Northwest. Grant PUD offers more than 25 plans and programs designed to provide customers with cost-effective assistance to conserve electricity. These plans and programs include but are not limited to: weatherization loans and grants, lighting programs, improvements to irrigation hardware, motor management seminars, and rebates for energy efficient water heaters. These programs show that Grant PUD is making an effort to conserve electricity and has made a satisfactory good faith effort to comply with section 10(a)(2)(C) of the FPA.

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

166. Based on its review of Grant PUD's compliance with the terms and conditions of the existing license, staff finds that Grant PUD's overall record of making timely filings and compliance with its license is satisfactory. Therefore, staff believes that Grant PUD can satisfy the conditions of a new license.

¹⁷⁶The list of applicable plans can be found in section 5.3 of the EIS for the project.

¹⁷⁷16 U.S.C. §§ 803(a)(2)(C) and 808(a) (2000).

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

167. Commission staff has reviewed Grant PUD's management, operation, and maintenance of the Priest Rapids Project pursuant to the requirements of 18 C.F.R. Part 12 of the Commission's regulations and the Commission's Engineering Guidelines and periodic Independent Consultant Safety Inspection Reports. Staff concludes that the dams and other project works are safe, and that there is no reason to believe that Grant PUD cannot continue to safely manage, operate, and maintain these facilities under a new license.

D. Ability to Provide Efficient and Reliable Electric Service

168. Commission staff has reviewed Grant PUD's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. As noted above, Grant PUD has managed the overall coordinated generation of the seven mid-Columbia River dams under the HCA. The primary objective of the HCA is to provide the most efficient use of the available water resource to meet both power and non-power requirements. Grant PUD has implemented a number of plant capacity and generation upgrades, including most recent upgrades at the Wanapum development and continuing throughout the license term, to ensure that the project is able to operate reliably into the future.

E. Need for Power

169. Under the terms of this license, with a total authorized installed capacity of 1,893 MW, the Priest Rapids Project will generate an average of 9,039,634 MWh of electricity per year, which is available to serve millions of customers in seven western states: Washington, Oregon, Idaho, Montana, Wyoming, California, and Utah. Seventy percent of these customers are served by Grant PUD through power sales contracts with future power purchasers like investor-owned and consumer-owned utilities headquartered in Oregon, Washington, and Idaho. As discussed above, the other 30 percent of customers come from utility participants of Grant PUD's Marketing Plan.

170. The project is located in the Northwest Power Pool (NWPP) area of the Western Electric Coordinating Council (WECC) region. The NWPP area includes all or major portions of the states of Washington, Oregon, Idaho, Wyoming, Montana, Nevada, and Utah, as well as a small portion of northern California and the Canadian provinces of British Columbia and Alberta. The NWPP area has a significant winter peak demand and depends heavily on hydroelectric generation (62 percent of installed capacity). For the period from 2003 through 2012, WECC expects winter peak demand and annual energy requirements in the NWPP area to grow at annual compound rates of 1.6 and 1.7 percent, respectively. With a significant percentage of hydroelectric generation in the region, it is expected that the ability to meet winter peak demand is adequate for at least the next 10 years.

171. We conclude that the region has a need for power over the near term and that the project, which supplies a part of the current regional electricity demand, could continue to help meet part of the regional need for power. The power from the proposed increase in turbine capacity at the project would help to meet Grant PUD's needs, as well as meeting part of the local and regional need for power. The project provides low-cost energy that displaces non-renewable, fossil-fired generation and contributes to a diversified generation mix. Displacing the operation of fossil-fueled facilities avoids some power plant emissions and creates an environmental benefit.¹⁷⁸

F. Transmission Services

172. The project's six primary transmission lines (three at the Wanapum development and three at Priest Rapids development), totaling 56.5 miles, deliver project power to the transmission grid via the BPA's Columbia and Midway substations. Grant PUD is proposing no changes that would affect its own or other transmission services in the region. The project and its transmission lines are important elements in providing power and voltage control to local Grant County, Washington, communities and the region.

G. Cost Effectiveness of Plans

173. Grant PUD plans to make a number of facility and operational modifications to both improve project generating capacity and enhance environmental resources affected by the project. Based on Grant PUD's record as an existing licensee, staff concludes that these plans are likely to be carried out in a cost-effective manner.

H. Actions Affecting the Public

174. Grant PUD provided extensive opportunity for public involvement in the development of its application for a new license for the project. During the previous license period, Grant PUD provided facilities to enhance public use of project lands and water, and operated the project with consideration for the protection of downstream as well as upstream uses of the mid-Columbia River. Staff concludes that Grant PUD's actions will continue to benefit the public.

PROJECT ECONOMICS

175. 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

¹⁷⁸ EIS at 3-4 and 383-84.

economics of hydropower projects, as articulated in *Mead Corp.*,¹⁷⁹ 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.

176. In applying this analysis to the Priest Rapids Project, we have considered two options: Grant PUD's proposal and the project as licensed herein. As proposed by Grant PUD,¹⁸⁰ the levelized annual cost of operating the project is \$134.2 million or \$14.85/megawatt-hour (MWh). The proposed project would generate an estimated average of 9,039,634 MWh of energy annually. When we multiply our estimated average generation by the alternative power cost of \$38.69/MWh,¹⁸¹ we get a total value of the project's power of \$349.7 million. To determine whether the proposed project is currently economically beneficial, staff subtracts the project's cost from the value of the project's power.¹⁸² Therefore, in the first year of continued operation, the project would cost \$215.5 million or \$23.84/MWh, less than the likely alternative cost of power.

177. As licensed herein with the mandatory conditions and staff measures,¹⁸³ the levelized annual cost of operating the project would be about \$133.1 million or \$14.73/MWh. Based on an estimated average of 9,039,634 MWh as licensed, the project would produce power valued at \$349.7 million when multiplied by the \$38.69/MWh value of the project's power. Therefore, the project power would cost \$216.6 million, or \$23.96/MWh, less than the likely cost of alternative power.

¹⁷⁹72 FERC ¶ 61,027 (1995).

¹⁸⁰See n.12 and n.15, *supra*. Although Grant PUD's proposal includes increased capacity at Wanapum and Priest Rapids developments, for the purposes of our *Mead Corp.* analysis, we only include the increased capacity at the Wanapum development.

¹⁸¹Based on BPA's new resource energy rate of \$34/MWh and capacity rate of \$24/kW-year.

¹⁸²Details of staff's economic analysis for the project as licensed herein and for various alternatives are included in the final EIS issued November 2006.

¹⁸³See n.12 and n.15, *supra*. Although Grant PUD's proposal includes increased capacity at Wanapum and Priest Rapids developments, for the purposes of our *Mead Corp.* analysis, we only include the increased capacity at the Wanapum development.

COMPREHENSIVE DEVELOPMENT

178. Sections 4(e) and 10(a)(1) of the FPA¹⁸⁴ require the Commission to give equal consideration to 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. Accordingly, 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 waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

179. The EIS for the project contains background information, analysis of effects, and support for related license articles. The project will be safe if operated and maintained in accordance with the requirements of this license.

180. 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, we have selected the proposed Priest Rapids Project, with the staff-recommended measures along with mandatory conditions, and find that it is best adapted to a comprehensive plan for improving or developing the Columbia River.

181. We select this alternative because: (1) issuance of a new license will serve to maintain a beneficial, dependable, and inexpensive source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreational resources, and historic properties; and (3) the 1,893 MW of electric energy generated from renewable resource will continue to offset the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable resources and reducing atmospheric pollution.

LICENSE TERM

182. Section 15(e) of the FPA¹⁸⁵ provides that any new license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years or 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

¹⁸⁴16 U.S.C. §§ 797(e) and 803(a)(1) (2000).

¹⁸⁵16 U.S.C. § 808(e) (2000).

moderate amount of such activities; and 50-year terms for projects with extensive measures.¹⁸⁶

183. This license requires a moderate amount of mitigation and enhancement measures including: operation of the future unit no. 11 fishway and release of spillflows for downstream passage of juvenile salmon and steelhead; continued evaluations of permanent downstream passage facility designs for Priest Rapids dam; continued operation and improvements to upstream passage facilities; sluiceway spills for fallback and kelt passage; operations and monitoring to improve conditions for fall Chinook salmon in the Hanford Reach; implementation of a plan to improve anadromous fish habitat; implementation of a performance evaluation program, including various anadromous fish monitoring and evaluation studies; implementation of hatchery programs for five species of salmon and steelhead; implementation of management plans for bull trout, Pacific lamprey, white sturgeon, and native resident fish; implementation of a total dissolved gas abatement program; monitoring of water temperature, dissolved oxygen, and pH; implementation of numerous plans that would protect and enhance wildlife and associated habitat, enhance recreation opportunities, protect the scenic quality of the mid-Columbia River, and protect historic resources. Consequently, a license term of 40 years for the Priest Rapids Project would be appropriate.

184. It is the Commission's policy to coordinate to a reasonable extent the license expiration dates of projects in a river basin, in order that subsequent relicensing proceedings can also be coordinated.¹⁸⁷ As noted above, there are three nearby licensed projects in the mid-Columbia River Basin: (1) Rocky Reach Project No. 2145; (2) Rock Island Project No. 943; and (3) Wells Project No. 2149.

185. Under the FPA, we cannot issue a new license with a term of less than 30 years; therefore, we cannot coordinate this license term with that for the Rock Island Project, because it expires 20 years from now in 2028.

186. The Rocky Reach Project's relicensing application has been filed but not yet acted upon and the licensee for the Wells Project is in the process of preparing its relicensing application, which is due to be filed by June 2010. Both the licensees for Rocky Reach and Wells Projects are parties to Habitat Conservation Plans (HCP) that include

¹⁸⁶See *Consumers Power Company*, 68 FERC ¶ 61,383-84 (1994).

¹⁸⁷In issuing new and subsequent licenses, the Commission will coordinate the expiration dates of licenses to the maximum extent possible, to maximize future consideration of cumulative impacts in contemporaneous proceedings at relicensing. See 18 C.F.R. § 2.23 (2007).

provisions for the protection of salmon and steelhead through a combination of project survival, off-site hatchery programs and evaluations, and habitat restoration work, and will terminate in 2052.

187. In consideration of the moderate amount of environmental measures required by the license, as well as to coordinate the timing of the salmon and steelhead program as set forth in the HCPs, and to ensure maximum flexibility in determining appropriate license terms for the Wells and Rocky Reach projects in light of the projects' expirations dates and the expiration date of the HCPs, we will issue Grant PUD a 44-year license.

The Commission orders:

(A) This license is issued to Public Utility District No. 2 of Grant County, Washington (licensee), for a period of 44 years, effective the first day of the month in which this order is issued, to operate and maintain the Priest Rapids Project. This license is subject to the terms and conditions of the 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 those lands, described in the project description and the project boundary discussion of this order.

(2) Project works consisting of two developments, Wanapum and Priest Rapids. At the Wanapum development, project works include: (a) a 8,637-foot-long and 186.5-foot-high integrated dam consisting of: (i) a 1,520-foot-long right embankment section; (ii) a 287-foot-long right concrete gravity dam and fish passage structure section; (iii) a 791-foot-long gated spillway section; (iv) a 14-foot-long trash sluice bay; (v) a 540-foot-long intake section including the downstream fish bypass at Unit 11; (vi) a 900-foot-long powerhouse; (vii) a 100-foot-long erection bay; (viii) a 202-foot-long left concrete gravity dam and fish passage structure section; and (ix) a 4,256-foot-long left embankment section; (b) 10 vertical shaft integrated Kaplan turbine/generator sets with a total authorized capacity of 1,038 MW; (c) a reservoir, extending about 38 miles to the tailrace of the Rock Island dam, with: (i) a surface area of about 14,680 acres; (ii) a gross storage capacity of 693,600 acre-feet; and (iii) a normal pool elevation ranging from 560 to 571.5 feet; (d) 13 developed and undeveloped recreation sites at the reservoir including boat launches, campgrounds, picnic areas, and the Wanapum Dam Heritage Center located at the dam; (e) three 230-kilovolt (kV) overhead transmission lines with: (i) the first transmission line connecting and terminating at 2 adjacent switchyards

1.5 miles away; (ii) the second running from one of the two switchyards north for 31 miles to the BPA's Columbia substation; and (iii) the third connecting the Wanapum substation with the Priest Rapids substation running south for 17 miles; and (f) appurtenant facilities.

At the Priest Rapids development, project works include: (a) a 10,103-foot-long and 179.5-foot-high integrated dam consisting of: (i) a 3,250-foot-long right embankment section; (ii) a 250-foot-long right concrete gravity dam and fish passage structure section; (iii) a 1,152-foot-long gated spillway section; (iv) a 900-foot-long powerhouse; (v) a 125-foot-long left bank fish passage structure section; and (vi) a 4,135-foot-long left embankment section; (b) 10 vertical shaft integrated Kaplan turbine/generator sets with a total authorized capacity of 855 MW; (c) a reservoir, extending about 18 miles to the tailrace of the Wanapum dam, with: (i) a surface area of about 7,725 acres; (ii) a gross storage capacity of 237,100 acre-feet; and (iii) a normal pool elevation ranging from 481.5 to 488 feet; (d) 10 developed and undeveloped recreation sites at the reservoir including boat launches, campgrounds, and picnic areas; (e) the Priest Rapids Hatchery located immediately downstream of the Priest Rapids dam; (f) three 230-kV transmission lines from the transformers at the powerhouse to the Priest Rapids switchyard 1 mile away, then continuing for 6 miles to the BPA's Midway substation; and (g) appurtenant facilities.

Exhibit A: The following sections of exhibit A filed on October 29, 2003:

Section 3.0, pages A-10 through A-24, A-27 through A-37, A-46 through A-64, entitled "Description of Primary Project Works," and section 4.0, pages A-67 through A-73, entitled "Description of Other Project Facilities."

Exhibit F: The following sections of exhibit F filed on October 29, 2003:

<u>Exhibit F Drawing</u>	<u>FERC No. 2114 –</u>	<u>Description</u>
Sheet 1	1001	Priest Rapids Development General Plan
Sheet 2	1002	Priest Rapids Development Elevation and Sections
Sheet 3	1003	Priest Rapids Development Spillway
Sheet 4	1004	Priest Rapids Development Powerhouse Plan Elev. 406.0

Sheet 5	1005	Priest Rapids Development Powerhouse Plan Elev. 421.5
Sheet 6	1006	Priest Rapids Development Powerhouse Plan Elev. 438.0
Sheet 7	1007	Priest Rapids Development Powerhouse Plan Elev. 462.0
Sheet 8	1008	Priest Rapids Development Powerhouse Plan Elev. 495.5
Sheet 9	1009	Priest Rapids Development Longitudinal Sections, Sheet 1
Sheet 10	1010	Priest Rapids Development Longitudinal Sections, Sheet 2
Sheet 11	1011	Priest Rapids Development Transverse Sections
Sheet 12	1012	Priest Rapids Development 230 kV Transmission Line, Sheet 1
Sheet 13	1013	Priest Rapids Development 230 kV Transmission Line, Sheet 2
Sheet 14	1014	Priest Rapids Development 230 kV Switchyard
Sheet 15	1015	Priest Rapids Development Main One Line Diagram
Sheet 16	1016	Priest Rapids Development Right Bank Fish Facilities
Sheet 17	1017	Priest Rapids Development Left Bank Fish Facilities, Upstream
Sheet 18	1018	Priest Rapids Development Left Bank Fish Facilities, Downstream

Sheet 19	1019	Priest Rapids Development Spawning Channel, Sheet 1
Sheet 20	1020	Priest Rapids Development Spawning Channel, Sheet 2
Sheet 21	1021	Priest Rapids Development Spawning Channel, Sheet 3
Sheet 22	1022	Wanapum Development General Plan
Sheet 23	1023	Wanapum Development Elevation & Sections
Sheet 24	1024	Wanapum Development Spillway
Sheet 25	1025	Wanapum Development Powerhouse Plan – Elev. 466.0
Sheet 26	1026	Wanapum Development Powerhouse Plan – Elev. 482.0
Sheet 27	1027	Wanapum Development Powerhouse Plan – Elev. 500.0
Sheet 28	1028	Wanapum Development Powerhouse Plan – Elev. 527.5
Sheet 29	1029	Wanapum Development Powerhouse Plan – Elev. 579.0
Sheet 30	1030	Wanapum Development Powerhouse Plan – Erection Bay
Sheet 31	1031	Wanapum Development Transverse Sections
Sheet 32	1032	Wanapum Development Longitudinal Sections, Sheet 1

Sheet 33	1033	Wanapum Development Longitudinal Sections, Sheet 2
Sheet 34	1034	Wanapum Development 230 kV Transmission Lines
Sheet 35	1035	Wanapum Development 230 kV Switchyard, Sheet 1
Sheet 36	1036	Wanapum Development 230 kV Switchyard, Sheet 2
Sheet 37	1037	Wanapum Development Main One Line Diagram
Sheet 38	1038	Wanapum Development Right Bank Fish Facilities, Sheet 1
Sheet 39	1039	Wanapum Development Right Bank Fish Facilities, Sheet 2
Sheet 40	1040	Wanapum Development Left Bank Fish Facilities, Sheet 1
Sheet 41	1041	Wanapum Development Left Bank Fish Facilities, Sheet 2

(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 water, riparian, or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A (Section 3.0, pages A-10 through A-24, A-27 through A-37, A-46 through A-64, and section 4.0, pages A-67 through A-73), and F described above are approved and made part of the license. The exhibit G drawings filed as part of the application for license do not conform to Commission regulations 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, 33 U.S.C. § 1431(a)(1) (2000), as those conditions are set forth in Appendix A to this order.

(E) This license is subject to the conditions submitted by the Secretaries of the U.S. Department of Commerce and of the Interior under section 18 of the FPA, 16 U.S.C. § 811, as those conditions are set forth in Appendix B to this order.

(F) This license is subject to the terms and conditions of the incidental take statement submitted by the U.S. Department of Commerce, National Marine Fisheries Service, as those terms and conditions are set forth in Appendix C to this order.

(G) This license is subject to the terms and conditions of the incidental take statement submitted by the U.S. Department of Interior, Fish and Wildlife Service, as those terms and conditions are set forth in Appendix D to this order.

(H) Public Utility District No. 2 of Grant County, Washington's application filed July 11, 2007 for approval of relevant portions of the Yakama Agreement during the period from the expiration of the existing license for Priest Rapids Project No. 2114 until a new license is issued for the project is approved.

(I) Portions of the Salmon and Steelhead and Hanford Reach Settlement Agreements (for information only) are attached for ease of reference as Appendices E and F.

(J) This license is subject to the articles set forth in Form L-5 (October 1975) (Appendix A), and the following additional articles:

Article 201. Administrative 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 1,796,400 kilowatts, effective November 12, 2007, and 1,810,200 kilowatts, effective July 7, 2008 (per Order Amending License and Revising Annual Charges, 121 FERC ¶ 62,168). This installed capacity will change upon the installation and start of operation of each new remaining unit authorized by this license. Once all remaining authorized units are installed, the total authorized installed capacity is 1,893,000 kilowatts.¹⁸⁸

¹⁸⁸For the purposes of annual charges, the licensee must comply with 108 FERC ¶ 62,075 (2004) (Order Modifying and Approving Amendment of License Application

(b) recompensing the United States for the use, occupancy, and enjoyment of 359.1 acres of its land (other than for transmission line right-of-way); and

(c) recompensing the United States for the use, occupancy, and enjoyment of 2,692.82 acres of its lands for transmission line right-of-way.

Article 202. Exhibit Drawings. Within 45 days of the date of issuance of the 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 7-3/4") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-2114-1001 through P-2114-####) 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 (i.e. F-1001), 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 along with form FERC-587 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. The remaining set of aperture cards (Exhibit G only) and a copy of Form FERC-587 shall be filed with the Bureau of Land Management office at the following address:

State Director
Bureau of Land Management
Lands and Minerals Adjudication Section (OR 936.1)
PO Box 2965
Portland, OR 97208-2965
ATTN: FERC Withdrawal Recordation

(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. Exhibit F drawings must be segregated from other project exhibits, and identified as (CEII) material under 18 C.F.R. §388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC

and Revising Annual Charges) and 113 FERC ¶ 62,205 (2005) (Order Authorizing Installation of Remaining Units).

Exhibit, Drawing Title, date of this license, and file extension in the following format [P-2114-#####, F-1001, Project 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 effective 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. The exhibit G drawings must comply with sections 4.39 and 4.51 of the Commission’s regulations. Exhibit G shall also clarify the amount of federal lands and lands for transmission line right-of-way occupied by the project.

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 301. Flood Control-refill. The licensee shall, each year before May 15, by direction of the U.S. Army Corps of Engineers’ District Engineer in charge of the locality, make available in the Priest Rapids and Wanapum reservoirs, storage space in an amount necessary to compensate approximately for valley storage that may be expected to be lost during the ensuing flood season: *Provided*, That said required storage space may be provided in either or both of the reservoirs in such manner as to least affect the interests of power generation: *Provided, Further*, That refill of this storage space shall be as directed by the District Engineer on a basis of forecasts of time and magnitude of flood flows and may be allowed any time between May 15 and June 30.

Article 302. Flood Control-storage. The licensee shall provide for flood control storage space in addition to that required to compensate for valley storage, as provided for in Article 301 up to a total of 500,000 acre-feet by additional drawdown as may be requested by the U.S. Army Corps of Engineers, such drawdown to be based on forecasts of peak flow and time of occurrence: *Provided*, That suitable arrangements have been made to compensate the licensee for the use of the additional storage space, and *Provided*

further, That such compensation shall be determined by the Commission, based upon the value of the additional storage space for other uses or upon payment in kind for power loss, at the discretion of the Commission.

Article 303. *Contract Plans and Specifications.* At least 60 days prior to the start of any construction activities associated with the protection, mitigation, and enhancement measures in this order, and any future project construction, the licensee shall submit one copy of its plans and specifications design document to the Commission's Division of Dam Safety and Inspections (D2SI) – Portland Regional Engineer, and two copies to the Commission (one of which shall be a courtesy copy to the Director, D2SI). The submittal also must include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Erosion and Sediment Control Plan.

The licensee shall prepare the plan after consultation with the appropriate federal and state soil conservation agencies, Washington Department of Ecology, Washington Department of Fish and Wildlife, and National Marine Fisheries Service. 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 agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies 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 geological, soil, and groundwater conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the D2SI – Portland Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Article 304. *Cofferdam Construction Drawings.* Before starting construction activities associated with the protection, mitigation, and enhancement measures in this order, and any future project construction, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations and shall make sure construction of the cofferdams and deep excavations are consistent with the approved design. At least 30 days before construction of the cofferdam, the licensee shall submit one copy to the Commission's D2SI – Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 305. *As-built Drawings.* Within 90 days of completion of construction or any modifications to existing project structures and facilities 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 structures and facilities as built. These exhibit drawings must comply with sections 4.39 and 4.51 of the Commission's regulations. 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, DHAC.

Article 306. Remaining Turbine Upgrades at Wanapum. The licensee shall continue with the installation of the remaining seven advance hydro turbine units at the Wanapum development of the Priest Rapids Project.

During turbine upgrades, the licensee shall: (1) implement the conditions stipulated in the water quality certification issued by the Washington Department of Ecology for the upgrade amendment on March 12, 2004; and (2) implement the Reasonable and Prudent Alternative Action Nos. 4 and 9, stipulated in the Biological Opinion for the upgrade amendment by the National Oceanic Atmospheric Administration's National Marine Fisheries Service on May 3, 2004, and all applicable Reasonable and Prudent Measures, and Terms and Conditions associated with Action Nos. 4 and 9.

Within 30 days before starting construction of each replacement unit, the licensee shall file with the Commission, the construction start date, and a description of the modifications and exact installed capacities of the unit. This information will be used to further revise the annual charges under Article 201(a).

After each turbine unit installment, the licensee shall file a report on the results including comments from the resource agencies and tribes, concerning the advanced turbine fish passage survival study for that installed unit. Construction of the next turbine unit will not commence until approval of the report is granted by the Commission.

Within 90 days of the completion of each upgrade, the licensee shall file as-built drawings pursuant to Article 305 of this order.

The licensee shall coordinate with and get prior authorization from the Commission's Division of Dam Safety and Inspections – Portland Regional Office for the on-site construction of each turbine unit.

Article 401. Commission Approval and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

Various conditions of this license found in Washington Department of Ecology's (Washington Ecology) water quality certification (Appendix A), National Marine Fisheries Service's (NMFS) and U.S. Fish and Wildlife Service's (FWS) fishway

prescriptions (Appendix B), NMFS' terms and conditions in the incidental take statement for upper Columbia River (UCR) spring-run Chinook salmon and UCR steelhead (Appendix C), and FWS' terms and conditions in the incidental take statement for bull trout (Appendix D) require the licensee to prepare plans in consultation with other entities for approval by Washington Ecology, NMFS, or the FWS, and require the licensee to implement specific measures without prior Commission approval. Each such plan shall be submitted to the Commission for approval prior to implementation. These plans are listed below.

No.	WQC condition no.	NMFS & FWS prescription no.	NMFS ESA term & condition no.	FWS term & condition no.	Plan name	Due date
1	6.2(1)	8 and 14	1.2 and 1.11		Downstream Passage Alternatives Action Plan	February 15 of each year
2	6.2(1)	24	1.33		Progress and Implementation Plans	February 15 of each year
3	6.2(1)	1, 2, 3, 4, and 5	1.31		Habitat Plans	within 1 year of license issuance
4	6.2(1)	1, 2, 3, 4, and 5	1.25 and 1.26		Artificial Propagation Plans (i.e., hatchery and genetic management plans), including monitoring and evaluation plans	within 1 year of license issuance
5	6.2(1)	1			Hanford Reach Follow-up Monitoring Program Plan	by June 1, 2011
6	6.2(1)		1.9 and 1.17		Avian Predator Control Program Plan	within 1 year of license issuance
7	6.2(1)		1.10 and 1.18		Northern Pikeminnow Removal Program	within 1 year of license

No.	WQC condition no.	NMFS & FWS prescription no.	NMFS ESA term & condition no.	FWS term & condition no.	Plan name	Due date
					Plan	issuance
8	6.2(1)	16	1.13		Priest Rapids Dam Alternative Spill Measures Evaluation Plan	February 15 of each year
9	6.2(1)	11	1.6		Wanapum Dam Interim Spill Regime Evaluation Plan	by February 15, 2009
10	6.2(5)(b) and Appendix C			2	Bull Trout Monitoring and Evaluation Plan ¹⁸⁹	within 1 year of license issuance and once every 5 years thereafter
11	6.2(5)(b) and Appendix C				White Sturgeon Management Plan	within 1 year of license issuance
12	6.2(5)(b) and Appendix C				Pacific Lamprey Management Plan	within 1 year of license issuance
13	6.2(5)(b)				Native Resident Fish Management Plan	within 1 year of license issuance
14	6.3(6)(c)				Hanford Reach Study Plan	within 1 year of license

¹⁸⁹This plan is named and described in Appendix C. The bull trout monitoring and evaluation plan is essentially the same as the bull trout management plan required by condition 6.2(5)(c) of the water quality certification.

No.	WQC condition no.	NMFS & FWS prescription no.	NMFS ESA term & condition no.	FWS term & condition no.	Plan name	Due date
						issuance
15	6.3(7)(b)				Implementation Feasibility Study Plan	within 4 years of license issuance
16	6.4(3)(c)				Future Unit #11 Bypass Facility Total Dissolved Gas Study Plan	by March 30, 2009
17	6.4(4)(c)				Wanapum Dam Turbine Installation Total Dissolved Gas Study Plan	by September 30, 2012
18	6.4(6)(b)				Priest Rapids Dam Bypass Facility Total Dissolved Gas Study Plan	by March 30, 2011
19	6.4(11)(e) and 6.4(11)(f)		1.7 and 1.15		Gas Abatement Plan	if total dissolved gas standards are not being met, the plan is due by February 1 each year; if total dissolved gas standards are being met, the plan is due by February 1 every ten years after

No.	WQC condition no.	NMFS & FWS prescription no.	NMFS ESA term & condition no.	FWS term & condition no.	Plan name	Due date
						the first year of compliance
20	6.6(1)(b)				Short-term Monitoring in Shallow Reservoir Habitats Plan	within 1 year of license issuance
21	6.6(2)				Fish Ladder Water Supply Monitoring Study Plan	by April 1, 2009
22	6.6(4)				Aquatic Invasive Species Control and Prevention Plan	within 1 year of license issuance
23	6.7(1)				Quality Assurance Project Plans	within 1 year of license issuance
24			3.1, 3.2, and 3.3		Pollution and Erosion Control Plan	within 1 year of license issuance
25				7	Bull Trout Hydrologic and Water Quality Study Plan	within 1 year 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. 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. 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 water quality certification conditions in Appendix A, fishway prescriptions in Appendix B, and terms and conditions to the incidental take statement for upper Columbia River (UCR) spring-run Chinook salmon and UCR steelhead (Appendix D), contemplate changes in the requirements of this license. These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. These conditions are listed below.

WQC condition no.	NMFS & FWS prescription no.	NMFS term & condition no.	Action
6.2(1)	9	1.5	modification of the Future unit bypass structure
6.2(1)	11	1.5 and 1.6	replacement or modification of the Wanapum dam interim spill program
6.2(1)	12	1.7 and 1.15	changes to the 2000 total dissolved gas abatement plan
6.2(1) and 6.4(6)(a)	15	1.12 and 1.20	implementation of prototype or permanent alternative top spill designs or other modifications to Priest Rapids dam operations or facilities related to fish passage
6.2(1)	16	1.13	replacement or modification of the Priest Rapids dam spill program
6.2(1)	21	1.21	modification of Priest Rapids Project fishways
6.2(1)	23		modification of project sluiceway operations
6.2(1)	1, 2, 3, 4, and 5	1.31	modification of the Habitat Plans
6.2(1)	1, 2, 3, 4, and 5	1.1, 1.9, 1.17, and 1.23	adjustment of the salmon and steelhead protection programs, including implementation of alternative passage solutions, adjustment of contributions to the habitat or no net impact funds, or adjustment of artificial propagation levels
6.3(3)			changes to project operations or implementation of other measures that would require modification of the Hanford Reach Agreement or the Salmon Agreement
6.3(7)(b) and 6.3(7)(c)			operational or facility modifications that may be proposed as part of a Hanford Reach Implementation Plan
6.4(3)(b),			operational or facility modifications to reduce

WQC condition no.	NMFS & FWS prescription no.	NMFS term & condition no.	Action
6.4(6)(a), and 6.4(12)(b)			increases in total dissolved gases, including measures identified as part of any Total Dissolved Gas Implementation Plan that may be developed
6.4(13)(a)			changes to the total dissolved gas reporting or monitoring requirements specified in part (a) of this article
6.5(3) and 6.5(4)			operational or facility modifications to reduce project effects on water temperature
6.6(1)(b)			operational or facility modifications to reduce project effects on water quality within shallow portions of the reservoirs
6.6(2)			operational or facility modifications to reduce water temperatures within the fish ladders
6.7(2)			modification of the Quality Assurance Project Plans
6.8(5)(e)			preparation of any Water Quality Protection Plans
Appendix C			modifications to passage facilities or project operations to mitigate effects on bull trout
Appendix C			modifications to the White Sturgeon Management Plan
Appendix C			modifications of facilities or operations to improve Pacific Lamprey passage

Article 402. Gatewell Exclusion Screen Study. Within six months of the issuance date of the license, the licensee shall file for Commission approval a plan for studying the effects of installing gatewell exclusion screens on salmon, steelhead, and lamprey survival during turbine passage.

The plan shall include, but not be limited to the following: (a) detailed design drawings describing the construction and installation of experimental exclusion screens at one turbine at each dam; (b) descriptions of methodologies for estimating the effect of the experimental screens on juvenile salmon and steelhead passage survival; (c) descriptions of methodologies or models for estimating the effects of the screens on juvenile lamprey passage survival; (d) an implementation schedule, including dates for conducting studies, reporting results, and making any recommendations for the installation of gatewell screens.

The licensee shall prepare the plan after consultation with National Marine Fisheries Service, Washington Department of Fish and Wildlife, and U.S. Fish and Wildlife Service. The licensee shall include with the plan, copies of comments and recommendations on the completed plan after it has been prepared and provided to the above entities, and specific descriptions of how the comments of the above entities are accommodated by the plan. The licensee shall allow a minimum of 30 days for the above entities to comment and to make recommendations before filing the plan with the Commission.

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

Article 403. *Tailrace Pumping System for Fishway Water Supply.* Within six months of the issuance date of the license, the licensee shall file for Commission approval a plan for installing and operating a tailrace pumping system for each fishway water supply.

The plan shall include, but not be limited to the following: (a) detailed design drawings of the proposed pumping facilities for each fishway; and (b) an implementation schedule.

The licensee shall prepare the plan after consultation with National Marine Fisheries Service, Washington Department of Ecology, Washington Department of Fish and Wildlife, and U.S. Fish and Wildlife Service. The licensee shall include with the plan, copies of comments and recommendations on the completed plan after it has been prepared and provided to the above entities, and specific descriptions of how the comments of the above entities are accommodated by the plan. The licensee shall allow a minimum of 30 days for the above entities to comment and to make recommendations before filing the plan with the Commission.

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

Article 404. *Fishery Operations Plan.* Within six months of the issuance date of the license, the licensee shall file for Commission approval a fishery operations plan.

The plan shall include, but not be limited to the following: (a) descriptions of fisheries-related operating criteria for the project turbines, the unit No. 11 fish passage facility, fishways, spillways, and sluiceways; (b) descriptions of fisheries-related

protocols for startup, in-season operation, shutdown, and inspection of the project turbines, the unit No. 11 fish passage facility, fishways, spillways, and sluiceways; and (c) an annual schedule for operation and inspection of these facilities.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, Washington Department of Ecology, Washington Department of Fish and Wildlife, and U.S. Fish and Wildlife Service. The licensee shall include with the plan, copies of comments and recommendations on the completed plan after it has been prepared and provided to the above entities, and specific descriptions of how the comments of the above entities are accommodated by the plan. The licensee shall allow a minimum of 30 days for the above entities to comment and to make recommendations before filing the plan with the Commission.

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

Article 405. *Investigation of Habitat Modifications in the Wanapum Tailrace.* As part of the Implementation Feasibility Study required under section 6.3(7)(a) of the water quality certification, the licensee shall investigate the feasibility of modifying the Wanapum dam tailrace to increase the amount of fall Chinook salmon spawning habitat.

Article 406. *Wanapum Dam Gate Seal Investigation.* As part of the Wanapum Dam Interim Spill Regime Evaluation Plan required under section 6.2(1) of the water quality certification and article 11 of National Marine Fisheries Service's and U.S. Fish and Wildlife Service's section 18 prescriptions, the licensee shall investigate the Wanapum dam spillway gate seals as a potential source for juvenile salmonid mortality during spillway passage.

Article 407. *Crab Creek/Burkett Lake Enhancement.* As part of the Native Resident Fish Management Plan required under section 5(b) of the water quality certification, the licensee shall investigate the potential for implementing stocking and facility enhancement measures in portions of Crab Creek that are within the project boundary and/or Burkett Lake.

Article 408. *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 Secretaries of Commerce or of the Interior pursuant to section 18 of the Federal Power Act.

Article 409. Wildlife Habitat Management Plan. Within one year of the issuance date of the license, the licensee shall file for Commission approval, a Wildlife Habitat Management Plan to protect and enhance wildlife habitats at the Priest Rapids Project. The plan shall be updated and filed, for Commission approval, at a minimum, every five years thereafter.

Wildlife Habitat Improvements

The plan shall include: (1) a detailed description of the habitat improvement measures that will be implemented over the first five years of the license, including the methods to be used; (2) a detailed description of the location where the improvements will occur, including maps and drawings; (3) a description of any annual or periodic maintenance and monitoring needed to ensure the success of the measures; and (4) a detailed implementation schedule. Priority should be given to habitat improvement projects that occur within and immediately adjacent to the project boundary. The plan shall also address noxious weed management and control on project lands.

The plan shall also include provisions and a schedule for continued installation, monitoring and maintenance of 48 wood duck nest boxes; 12 raptor nesting, roosting and perching structures; and 50 waterfowl nesting platforms (mallard nest baskets and goose nesting tubs) around the project shoreline within the project boundary.

Fire Suppression Program

The plan shall also contain a provision for the licensee to develop and implement a fire suppression program to maintain wildlife habitat in the project area, rehabilitate lands subject to wildfire, and to reduce fuel loads to prevent wildfire on project lands and adjoining wildlife areas. The program shall include, but not be limited to: (1) assisting the Washington Department of Fish and Wildlife (Washington DFW) in the fire suppression efforts at Colockum, Quilomene, Whiskey Dick, Priest Rapids, Crab Creek, and Buckshot Wildlife Management Areas; (2) providing signage at West Bar, Quilomene Bay, and at major marinas describing the hazards and costs of wildlife fire; and (3) undertaking habitat rehabilitation efforts, such as planting sagebrush in recently burned areas, removing cheatgrass in selected areas, and replanting with perennial grasses to reduce fuel loads.

Reporting and Consultation

The plan shall include provisions for filing with the updated Wildlife Habitat Plan a summary of the habitat improvement measures implemented during the previous five years, as well as the measures proposed for the next five years.

Development and implementation of the plan shall be coordinated with the development and implementation of the Recreation Resources Management Plan (Article 418) and Shoreline Management Plan (Article 419), to ensure that public access controls and site rehabilitation measures are addressed and consistent with project and adjoining public land management goals and objectives.

The plan shall be developed after consultation with the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Bureau of Reclamation, Washington DFW, Washington Department of Natural Resources, Washington Recreation and Conservation Office, the Confederated Tribes and Bands of the Yakama Nation, and the Wanapum Indians. The licensee shall include with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 information.

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

Article 410. Wildlife Habitat Monitoring and Information and Education. Within one year of the issuance date of the license, the licensee shall file for Commission approval, a Wildlife Habitat Monitoring and Information and Education Plan to monitor the effects of project-related recreation on wildlife and sensitive wildlife habitats for the life of the license. The plan shall: (1) describe the methods that would be used to monitor recreation effects on wildlife and sensitive wildlife habitats; (2) describe the measures (signage, educational outreach, etc.) that would be implemented to educate the public about the potential adverse effects of dispersed recreation on sensitive habitats; (3) include provisions and criteria for identifying and implementing corrective actions to control recreation impacts and to rehabilitate wildlife habitats; and (4) include an implementation schedule.

An annual report describing the monitoring efforts and results and any recommended corrective actions shall be filed with the Commission, U.S. Fish and Wildlife Service (FWS), U.S. Bureau of Land Management (BLM), U.S. Bureau of Reclamation (Reclamation), Washington Department of Fish and Wildlife (Washington DFW), Washington Department of Natural Resources (Washington DNR), Washington Recreation and Conservation Office (Washington RCO), Confederated Tribes and Bands of the Yakama (Yakama), and the Wanapum Indians (Wanapum) by December 31 of each year following Commission approval of the plan.

Development and implementation of the program shall be coordinated with the Recreation Resources Management Plan (Article 418) and Shoreline Management Plan (Article 419), to ensure that public access controls and site rehabilitation measures are addressed and consistent with project and adjoining public land management goals and objectives.

The plan shall be developed after consultation with FWS, BLM, Reclamation, Washington DFW, Washington DNR, Washington RCO, the Yakama, and the Wanapum. The licensee shall include with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 information.

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

Article 411. Transmission Line Avian Collision Protection. Within two years of the issuance date of the license, the licensee shall file for Commission approval, a Transmission Line Avian Collision Protection Plan to protect waterfowl and raptors from colliding with project transmission lines. The plan shall include measures for installing power line identifiers on project transmission lines, overhead ground wires, and guy wires at the following sites: Midway crossing – Columbia River below Priest Rapids dam; North and South Moran Slough; Crab Creek crossing; Wanapum dam tailrace; Wanapum switchyard; Frenchman Coulee; and Moses Coulee. The plan shall include a detailed description of the types of markers that will be used and an implementation schedule.

Further, the plan shall contain provisions to notify the Commission at least 90 days before undertaking any other future modifications to project transmission line structures. Any such modifications shall be accomplished in accordance with the guidelines set forth in "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006," by the Edison Electric Institute and the Avian Power Line Interaction Committee, or as such publication may be updated from time to time. Within 90 days after completion of modifications, the licensee shall file as-built drawings of the transmission line with the Commission per Article 304.

The plan shall be developed after consultation with the U.S. Fish and Wildlife Service and the Washington Department of Fish and Wildlife. The licensee shall include

with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 information.

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

Article 412. Northern Wormwood Conservation. Within 90 days of the issuance date of the license, the licensee shall file for Commission approval an implementation schedule for the Northern Wormwood Conservation Plan that includes the following measures: (1) conducting annual demographic monitoring consistent with the efforts reported in 2003 license application for a period of 10 years to empirically describe the population status of northern wormwood at the project; (2) maintaining 5,000 linear feet of fencing to control vehicle access at the Beverly population site; and (3) controlling noxious weeds at the Beverly population site. The implementation schedule shall be developed after consultation with U.S. Bureau of Reclamation (Reclamation), U.S. Fish and Wildlife Service (FWS), and Washington Department of Natural Resources Natural Heritage Program (Washington Natural Heritage Program) and shall include a schedule for filing the annual monitoring results with these entities.

The Commission reserves the right to require changes to the implementation schedule. The licensee shall not implement the measures identified above until notified by the Commission that the implementation schedule is approved. Upon Commission approval of the schedule, the licensee shall implement the plan, including any changes required by the Commission.

By December 31, 2018, in consultation with Reclamation, FWS, and Washington Natural Heritage Program, the licensee shall file a report with the Commission describing the results of the annual demographic monitoring and any recommendations for further monitoring and protection measures, including additional access control measures, data management, or other research to further support long-term conservation of the species at the project based on the monitoring results. The report shall include an implementation schedule for the recommended measures.

The Commission reserves the right to require changes to measures or timing set forth in the modified Northern Wormwood Conservation Plan. The licensee shall not implement the measures until notified by the Commission that the plan is approved.

Upon Commission approval, the licensee shall implement the modified plan, including any changes required by the Commission.

The licensee shall include with the schedule and subsequent monitoring report documentation of consultation, copies of recommendations on the completed schedule and subsequent monitoring report after it has been prepared and provided to the above entities, and specific descriptions of how the entities' comments are accommodated by the schedule and subsequent monitoring report. The licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the schedule and subsequent monitoring report with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

Article 413. Rare, Threatened, and Endangered Plant Monitoring. Within one year of the issuance date of the license, the licensee shall file for Commission approval, a plan for monitoring of federally listed threatened, and endangered or rare plants within the project boundary. The monitoring plan shall include, at a minimum, the following: (1) a detailed description of the methods to be employed; (2) the species to be monitored; (3) provisions to map and quantify population trends; (4) an implementation schedule; and (5) an agency consultation and reporting schedule.

A report detailing the monitoring results and recommendations for modifying the monitoring plan, if any, shall be filed with the Commission every six years following Commission approval of the plan.

The plan and subsequent monitoring report shall be developed after consultation with the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Washington Department of Fish and Wildlife, and Washington Department of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 information.

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

Article 414. Bald Eagle Perch/Roosting Protection. Within one year of the issuance date of the license, the licensee shall file for Commission approval, a plan to

protect existing bald eagle perching and roosting trees within the project boundary from beaver damage and promote future development of nesting and roosting sites through riparian plantings at the project. The plan shall include, at a minimum, the following: (1) maps showing the location of bald eagle perch and roosting trees; (2) a detailed description of the protection methods to be used; (3) a detailed monitoring program and schedule to evaluate the success of the protection measures and to determine if new perch and roosting trees are being used or old ones abandoned; (4) a map showing the location of all areas under consideration for riparian plantings; and (5) a riparian planting plan, including timing, species to be used, fertilization, weed management, and monitoring to ensure the success of the plantings. The plan shall include a schedule for reporting the results to the U.S. Fish and Wildlife Service (FWS) and Washington Department of Fish and Wildlife (Washington DFW).

The plan shall be developed after consultation with FWS and Washington DFW. The licensee shall include with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 information.

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

Article 415. *Columbia River Basin Fish and Wildlife.* The Commission reserves the authority to order, upon its own motion or upon the recommendation of federal or 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 416. *Programmatic Agreement.* The licensee shall implement the "Programmatic Agreement among the Commission, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Officer for Managing Historic Properties that may be Affected by a License Issuing to Public Utility District No. 2 of Grant County, Washington for the Continued Operation of the Priest Rapids Project in Grant, Yakima, Kittitas, Douglas, Benton, and Chelan Counties, Washington (FERC No. 2114-116)," executed on April 12, 2007, including but not limited to the Historic Properties Management Plan (HPMP) for the Project. The licensee shall file for

the Commission's approval a final HPMP within one year of issuance of this order. 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 prior to Commission approval of the HPMP, the licensee shall obtain approval from the Commission and the Washington State Historic Preservation Officer, before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Article 417. Memorandum of Agreement between Public Utility District No. 2 of Grant County, Washington and the Wanapum Indians. Within six months after license issuance, the licensee shall file for Commission review and approval a Memorandum of Agreement between the licensee and Wanapum Indians based on the previous Memorandum of Agreement that was signed on January 8, 1957, and including all subsequent agreements and modifications to the original 1957 Memorandum of Agreement. The Memorandum of Agreement shall include a statement about the licensee's continued commitment to the Wanapum Indians, including but not limited to, the need for identification, protection, and management of cultural resources, gravesites, and relics at the project which are significant to the Wanapum Indians. The Memorandum of Agreement shall also include provisions to ensure cultural artifacts important to the Wanapum, which are located at the Project, are properly handled and curated.

Article 418. Priest Rapids Recreation Resource Management Plan. The Priest Rapids Recreation Resource Management Plan filed on October 29, 2003, and consisting of Exhibit E7, pages 1 through 51, and Exhibits 1 through 3, is approved for the recreation sites located within the existing Priest Rapids Project boundary. Within one year of the issuance date of the license, the licensee shall implement the following measures at the sites described in the approved Priest Rapids Recreation Resource Management Plan:

Project-Wide

(1) extend the Desert Aire, Huntzinger Road, and Crescent Bar boat launches; (2) periodic monitoring and site clean-up at six shoreline dispersed recreation sites, including, four at Wanapum Development (McCumber Beach, Quilomene Dune and Bay, Black Sand Beach, and Quincy Wildlife Area), and two at Priest Rapids Development (Goose Island and Haystack Rocks); (3) exclude off-road vehicle use in designated recreation areas, located on licensee-owned lands within the project boundary; (4) install vault toilets; and (5) implement soil erosion and sediment control measures where ground-disturbing activities are proposed.

Priest Rapids Development

(1) develop a barrier-free fishing pier or platform at the Crab Creek Corridor and one at the Huntzinger Road Fishing Access Site; (2) install two kiosks at Crab Creek Corridor; (3) develop an approximate 7.4-mile-long trail at Crab Creek Corridor; (4) enhance the Priest Rapids dam picnic area; (5) develop an approximate 3.1-mile-long trail at Mattawa-Desert Aire; (6) develop a new day-use area (Priest Rapids Park); and (7) at the Priest Rapids dam tailrace: (a) develop 10 primitive campsites, (b) litter clean-up and removal, and (c) improve the access road and parking area.

Wanapum Development

(1) enhance the Wanapum Dam Heritage Center, Wanapum Dam Overlook Area, and Wanapum dam picnic area with signs, picnic tables, vault toilets, and access road and parking area improvements; (2) continue to provide a licensee-owned boat at Wanapum dam for use by local law enforcement officers; (3) improve the Wanapum dam boat launch (upper) area by expanding the parking area and providing vault toilets; (4) improve Sand Hollow-South area with 30 semi-primitive campsites, 10 primitive campsites, picnic tables, vault toilets, and a kiosk; (5) improve the Kittitas County boat launch/area at Vantage with barrier-free facilities, picnic tables, and dredge and extending the existing the boat launch; (6) improve the Frenchman's Coulee boat launch/day use area with picnic tables, a vault toilet, an approximate 1.0-mile-long trail, and a sign on a nearby road(s) to identify the location of the Frenchman's Coulee boat launch; (7) install a sign at Quilomene Dune and Bay to address wake size by boaters; and (8) renovate Apricot Orchard boat launch/area.

Interpretation and Education Program

(1) install two interpretive displays/kiosks regarding the Ice Age Floods; (2) install a sign at an identified recreation site to improve public awareness of and the need to protect historic properties; (3) implement a "carry-in/carry-out" policy for the public to carry out their trash from the project recreation sites; identify and remove certain existing trash receptacles, and install containers with appropriately-sized plastic bags at key public access and recreation sites; and (4) review and select events to be provided, such as interpretive talks and reservoir clean-up day.

Project Facilities Assessment

Within one year of the issuance date of the license, the licensee shall, after consultation with the U.S. Fish and Wildlife Service (FWS) and Washington Department of Fish and Wildlife (Washington DFW), conduct project facilities assessments at the: (1) Priest Rapids Development to determine whether Wanapum dam boat launch (lower) shall be closed due to public safety concerns; and (2) Wanapum Development to

determine whether or not the Airstrip Site and/or Wanapum Recreation Area shall be developed further.

Within 6 months after completion of the project facilities assessment, the licensee shall, after consultation with the FWS and Washington DFW, file a report for Commission approval that shall include, but not be limited to, a discussion of the results of the assessments, documentation of consultation, copies of recommendations on the completed report after it has been prepared and provided to the entities, and specific descriptions of how the entities' comments are accommodated by the report. If the assessment indicates that the Airstrip Site and/or Wanapum Recreation Area should be developed as project facilities, a discussion of proposed measures, associated cost estimates, and provisions to modify the project boundary accordingly shall be included in the report. The licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations prior to filing the report 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 require changes to the report. The report shall not be implemented until the licensee is notified that the report is approved. Upon Commission approval, the licensee shall implement the report, including any changes required by the Commission.

As-Built Documentation

Within 90 days of completion of the recreation facilities, the licensee shall file, for Commission approval, as-built drawings, pursuant to Article 305 that show the location, type, and layout of all the existing and newly constructed facilities in relation to the existing Priest Rapids Project boundary.

The licensee shall also file, for Commission approval, a report with the as-built drawings for the aforementioned facilities, that shall include the following items: (1) actual costs for the construction of the facilities, and (2) an evaluation of existing signs at project recreation sites for accuracy of information, and descriptions of any revision of existing signs or installation of new signs.

Periodic Updates for the Priest Rapids Recreation Resource Management Plan

The licensee shall file for Commission approval periodic updates to the Priest Rapids Recreation Resource Management Plan. The first update shall be due April 1, 2015, and subsequent updates shall be filed every 12 years thereafter during the term of the license. The plan shall be reviewed and updated after consultation with the FWS, Washington DFW, Washington Recreation and Conservation Office, U.S. Bureau of

Reclamation, U.S. Bureau of Land Management, Wanapum Indians, Confederated Tribes and Bands of the Yakama Nation, and Kittitas County.

As part of the review and update of the plan, the licensee shall assess the adequacy of existing project recreation facilities to meet the current recreation needs at the Priest Rapids Project. The plan shall also describe, as appropriate, any additional measures or modifications to the facilities that shall be needed and associated schedule for implementing such changes.

The plan shall include documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the above entities, 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 prior to 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 require changes to the plan. The plan shall not be implemented until the licensee is notified that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Operation and Maintenance of Project Recreation Facilities

The licensee shall operate and maintain all of the existing and new recreation facilities.

Article 419. Shoreline Management Plan. Within one year of the issuance date of the license, the licensee shall file for Commission approval a final Shoreline Management Plan to protect the scenic quality of the mid-Columbia River. The plan shall contain a provision to protect and enhance Crescent Bar Island.

The final Shoreline Management Plan shall include, at a minimum, provisions for: (1) general land use policies; (2) procedures for issuance of a permit and/or lease, including the application process; (3) a land use classification system that shall include (a) an identification and a description of seven land use classifications as: (i) Project Facilities, (ii) Conservation, (iii) Agriculture, (iv) Public Recreation – Dispersed, (v) Public Recreation - General Development, (vi) Single-Family Residential, and (vii) Planned Development, (b) a table that identifies the acres associated with each land use classification, (c) an identification of allowable and prohibited uses in each land use classification, and (d) an update and inclusion of the land use classification maps, based on its draft Priest Rapids/Wanapum Shoreline Management Plan, dated August 2003, and identified as Appendix A (Land Use Classification Maps) sheets 1 through 8, of its

license application filed October 29, 2003; and (4) a review and an update of the plan every 6 years.

The final Shoreline Management Plan shall also include, at a minimum, provisions for the following items at Crescent Bar Island: (1) a trail; (2) dredging the existing boat channel and lengthening the existing boat launch; (3) removing six existing recreational vehicle campsites; (4) a directional sign; (5) picnic tables; (6) a vault toilet; and (7) a map that clearly identifies the location of project recreation sites, including the trail and its length, as well as the existing disturbed footprint. Also, the licensee shall include a construction schedule, cost estimates for the construction and maintenance of the facilities, provisions for soil erosion and sediment control measures as required under Article 303, and a discussion of how the needs of the disabled are considered in the planning and design of the recreation facilities. Crescent Bar Island shall be managed under two land use classifications as Planned Development and Conservation, except that no further development shall occur beyond the existing disturbed footprint (except for the trail).

The licensee shall prepare the final Shoreline Management Plan after consultation with the U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Washington Recreation Conservation Office, Washington Department of Natural Resources, and Wanapum Indians. 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 consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and make recommendations prior to 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 require changes to the plan. The plan shall not be implemented until the licensee is notified that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 420. Use and Occupancy. (1) 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 occupancy, 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.

(2) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (a) landscape plantings; (b) 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; (c) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (d) 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: (a) inspect the site of the proposed construction, (b) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (c) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (2), 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 (2) and to require modification of those standards, guidelines, or procedures.

(3) The licensee may convey easements or rights-of-way across, or leases of project lands for: (a) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (b) storm drains and water mains; (c) sewers that do not discharge into project waters; (d) minor access roads; (e) telephone, gas, and electric utility distribution lines; (f) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (g) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (h) water

intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. 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 (3) 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission in writing no later than January 31 of each year.

(4) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (a) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (b) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (c) other pipelines that cross project lands or waters but do not discharge into project waters; (d) 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; (e) 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; (f) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (g) 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 (4)(g) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (4), 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.

(5) The following additional conditions apply to any intended conveyance under paragraph (3) or (4) of this article:

(a) 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.

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

(c) 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; and (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.

(d) 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.

(6) 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.

(7) 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.

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

(L) This order is final unless a request for rehearing is filed within 30 days from 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.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

FORM L-5**(October, 1975)**

**Federal Energy Regulatory Commission
Terms and Conditions of License for Constructed Major Project Affecting
Navigable Waters and 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 United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and 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 Secretary of the Army may prescribe in the interest of navigation, and 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 Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other 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. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project

works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. Timber on lands of the United States 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 27. 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 28. 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 29. 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 30. 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 31. 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 32. 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 33. 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 34. 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 35. 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 36. 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 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 37. 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.

APPENDIX A

Washington Department of Ecology Section 401 Water Quality Certification filed April 3, 2007 and modified March 17, 2008

Terms and Conditions

6.0 WATER QUALITY CERTIFICATION CONDITIONS

In view of the foregoing and in accordance with Section 401 of the Clean Water Act (33 USC 1341), RCW 90.48.260 and Chapter 173-201A, Ecology finds reasonable assurance that the proposed license will comply with state and federal water quality standards and other appropriate requirements of state law provided the following conditions are met.

6.1 GENERAL CONDITIONS

- 1) The Project shall comply with all water quality standards (currently codified in WAC 173-201A), ground water standards (currently codified in WAC 173-200), and sediment quality standards (currently codified in WAC 173-204) and other appropriate requirements of state law that are related to compliance with such standards. The conditions in Section 6 provide reasonable assurance that the Project will protect and maintain designated uses and therefore will meet the state's anti-degradation standard. Further, the conditions in Section 6 provide a detailed strategy to achieve compliance with state water quality standards and for purposes of this Certification constitute a water quality attainment plan under WAC 173-201A.
- 2) In the event of changes in or amendments to the state water quality, ground water, 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 Federal Clean Water Act, such provisions, standards, criteria or requirements shall apply to the Project and any attendant agreements, orders, or permits, to the fullest extent permitted by law.
- 3) Discharge of any solid or liquid waste to the waters of the State of Washington without prior approval from Ecology is prohibited.
- 4) Grant PUD shall consult with Ecology before it undertakes any change to the Project or Project operations that might significantly and adversely affect compliance with any applicable water quality standard (including designated uses) or other appropriate requirement of state law. If, following such consultation, Ecology determines that such change would violate state water quality standards or other appropriate requirements of state law, Ecology reserves the right to condition or deny such change, in accordance with

applicable federal and state law. Ecology will respect the dispute resolution process contained in the Salmon Agreement.

- 5) This Certification does not exempt compliance with other statutes and codes administered by federal, state and local agencies.
- 6) Any provisions of this Certification that incorporate the substantive obligations of the Salmon Agreement shall continue to apply even if the Salmon Agreement ceases to exist, or if FERC fails to fully incorporate any provisions of the Salmon Agreement in the Project license, unless otherwise ordered by Ecology. However, if a conflict or inconsistency exists or arises between this Certification and the Salmon Agreement or any part thereof that is incorporated in this Certification, the terms of this Certification shall govern, unless Ecology directs otherwise.
- 7) Ecology retains the right to modify schedules and deadlines provided under this Certification or provisions of the Comprehensive Plan that it incorporates.
- 8) Ecology retains the right to require additional monitoring, studies, or measures if it determines that there is a likelihood or probability that violations of water quality standards or other appropriate requirements of state law have or may occur, or insufficient information exists to make such a determination.
- 9) Ecology reserves the right to amend this Certification by further order if it determines that the provisions hereof no longer provide reasonable assurance that the proposed FERC license will comply with water quality standards or other appropriate requirements of state law. Any such amended certification shall take effect immediately upon issuance of such order, unless otherwise provided in the order, and may be appealed to the Pollution Control Hearings Board (PCHB) under RCW 43.21B.
- 10) Ecology reserves the right to issue administrative orders, assess or seek penalties under state or federal, and to initiate legal actions in any court or forum of competent jurisdiction for the purposes of enforcing the requirements of this Certification or applicable state or federal laws.
- 11) The conditions of this Certification should not be construed to prevent or prohibit Grant PUD 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 or more years elapse between the date that this Certification is issued and the date of issuance of the New License for the Project, this Certification shall have deemed to be expired and denied at such time and Grant PUD shall send Ecology an updated 401 application that reflects then current conditions, regulations and technologies. This provision should not be construed to

otherwise limit the reserved authority of Ecology to withdraw, amend or correct the Certification before or after the issuance of the New License.

- 13) All documents required under this Certification to be submitted to Ecology shall be submitted to Washington State Department of Ecology, Eastern Regional Office, Water Quality Program, Section Manager.
- 14) Copies of this Certification and associated permits, licenses, approvals and other documents shall be kept on site and made readily available for reference by Grant PUD, its contractors and consultants, and by Ecology.
- 15) Grant PUD shall allow Ecology access to inspect the Project and Project records required by this Certification for the purpose of monitoring compliance with the conditions of this Certification. Access will occur after reasonable notice, except in emergency circumstances.
- 16) Grant PUD shall, upon request by Ecology, fully respond to all reasonable requests for materials to assist Ecology in making determinations under this Certification and any resulting rulemaking or other process.
- 17) If an action required under or pursuant to this Certification requires as a matter of federal law that the FERC approve the action before it may be undertaken, Grant PUD shall not be considered in violation of such requirements to the extent that FERC refuses to provide such approval, provided that Grant PUD diligently seeks such approval and so notifies Ecology.
- 18) The reservations contained in this Certification do not preclude or limit any right of Grant PUD to contest the validity of any such reservation in connection with any order or any other action taken by Ecology pursuant to such reservation.
- 19) All information prepared or collected as a requirement of this Certification (e.g., plans, reports, monitoring results, meeting minutes, raw data) shall be made available to the public on Grant PUD's website or by another readily accessible means. Where data or quantitative analysis is involved, it shall be provided in a format that allows others to efficiently validate and analyze data and results.
- 20) Where this certification refers to "reasonable and feasible" actions or measures, Ecology retains the authority to ultimately determine if an action or measure qualifies as "reasonable and feasible."
- 21) Within this Certification, Ecology has required the use of an Adaptive Management process to meet a number of State water quality standards. As used in this Certification, Adaptive Management means an iterative and rigorous process used to improve decision-making and achieve objectives in the face of uncertainty. It is intended to improve the management of natural resources affected by Project in order to achieve desired objectives as

effectively and efficiently as possible. For purposes of this Certification, Adaptive Management involves the following steps:

- Develop initial hypothesis regarding any Project effects and potential remedial measures
- Develop objectives for addressing such impacts
- Develop and implement reasonable and feasible measures in accordance with an established schedule
- Develop or identify monitoring and evaluation methodologies for determining whether such objectives have been achieved
- Monitor and evaluate the implementation of such measures and their effectiveness toward achieving such objectives
- Review monitoring and evaluation efforts
- Confirm such objectives have been achieved or, if not achieved, evaluate additional or revised measures, and implement any appropriate and reasonable measures.

6.2 AQUATIC LIFE

1) General

Grant PUD shall operate the Project in compliance with the Salmon Agreement, the Biological Objectives and Implementation Measures set forth in Appendix C [of this certification], and the Fish Management Plans to be developed in accordance with Subsection 5b below.

Ecology expects the processes for adaptive management contained within this section will be adequate to protect aquatic life as required under state law and the Clean Water Act. In the event that the Salmon Agreement, or any of the Biological Objectives, Implementation Measures or Fish Management plans fail, or begin to fail, as determined by Ecology, to adequately protect, in a timely manner, existing and designated uses or water quality, Ecology reserves the right to require such changes including, but not limited to, Biological Objectives, Implementation Measures, or any operation or physical structures, as it determines necessary to protect these uses or water quality.

Ecology reserves the right to modify the processes or decisions described herein, including timeframes. If timely progress is not made or plans or reports are not timely submitted, Ecology reserves the right to impose penalties.

2) Adaptive Management

The Adaptive Management process (described under Section 6.1 21 above) has been and will continue to be used for the protection of aquatic species. For Covered species, adaptive management is provided through the Salmon Agreement process. For non-Covered species, the adaptive management process was used in the development of the outlined fish management plans, in Appendix C [of this certification]. Under both processes, for each aquatic species, hypotheses were developed regarding Project effects and potential remedial measures. Based on these hypotheses, objectives were developed (see “Biological Objectives” immediately below). Implementation measures were developed, with a schedule. Plans are to be developed under the Settlement Agreement and for this certification which will include detailed monitoring and evaluation procedures to determine attainment of the Biological Objectives. The results of the evaluations will be reviewed by fish management agencies, tribes and Ecology and used to determine attainment of the Biological Objectives. Further measures may be required, as described in this Certification, Subsections 5 c through h, below.

3) Biological Objectives

For purposes of this Certification, the Biological Objectives represent important steps toward meeting the designated uses of a water body. They serve as quantifiable goals for moving toward attaining full support of designated uses. They are not intended to serve as a surrogate for the requirement to support and protect designated uses of the waters. Ecology reserves the authority to modify or supplement any of the Biological Objectives insofar as is necessary to achieve full support and protection of designated uses. Grant PUD is required to undertake all reasonable and feasible actions to support and protect designated uses and to achieve the Biological Objectives, in consultation with the relevant forums and workgroups, as described below.

- a) Covered Species. The Biological Objectives for Covered Species are in the Salmon Agreement. The Salmon Agreement (and Biological Objectives) include a no net impact (NNI) objective, which refers to the condition whereby the Project does not produce any unmitigated Project-related mortality to Covered Species. Under the agreement, NNI is achieved when:
- There is a minimum of 91% combined adult and juvenile survival rate for each Covered Species past each dam and through each reservoir (survival standard), *and*
 - Grant PUD implements:

- 2% mitigation in the form of funding habitat restoration and conservation work in mid-Columbia tributary streams and 7% mitigation in the form of hatchery supplementation, *or*
- Alternate mitigation as further specified in Sections IX through XII of the Salmon Agreement.

The fundamental objective of the Salmon Agreement is to achieve the survival standards for Covered Species by 2013.

The Salmon Agreement also includes a NNI Fund to exist until NNI is achieved for each Covered Species. The NNI fund is to provide for mitigation during the early years of the New License, specifically to address the gap between measured or estimated Project survival and the survival standards.

This combination of adult and juvenile survival standards, 2% habitat fund, 7% hatchery supplementation and NNI Fund provide protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

- b) Non-Covered Species. Biological Objectives for non-Covered Species are included in the fish management plan outlined in Appendix C[of this certification]. The Biological Objectives are not prioritized as written, except where specifically identified.

4) **Fish Management Forums**

- a) Priest Rapids Coordination Committee (PRCC). As used in this Certification, the PRCC is the forum formed under the Salmon Agreement for purposes of coordinating and implementing that agreement. For purposes of this Certification, Grant PUD will consult with the PRCC and other interested tribes and agencies with fish management authority on Covered Species. For any plans or reports required per the Salmon Agreement, Grant PUD shall provide copies to Ecology, which shall include documentation of consultation with the above entities, copies of comments received by the entities, descriptions of how the comments were accommodated, descriptions of the basis for any disagreements, and the position and rationale of the entities on that issue. In its decision-making on Covered species, the PRCC shall consider the effects of proposed actions on Non-Covered Species.

- b) Priest Rapids Fish Forum (PRFF). The PRFF is to consist of Grant PUD and the tribes and agencies with fish management authorities for protection of the non-Covered species. Grant PUD shall consult with the PRFF as provided in this Certification with respect to the non-Covered species. Where Grant PUD is required to consult with the PRFF, it shall be by the process described below, under Section 6.
- c) Coordination between PRFF and PRCC. In the event that conflict or the potential for conflict arises between actions contemplated or required for Covered Species and actions contemplated or required for non-Covered Species. Grant PUD shall notify in writing members of the PRFF and PRCC and initiate the consultation process.
- d) Tribe Participation. A decision by a tribe not to participate in or withdraw from the PRFF at any time shall not be construed in any manner to waive, abridge, or limit any Indian or tribal right reserved or protected in any treaty, executive order, statute or court decree under Federal or state law.

5) **Attainment of Biological Objectives**

- a) Implementation Measures. Initial Implementation Measures for Covered Species are described in the Salmon Agreement. Grant PUD shall undertake all reasonable and feasible measures to achieve the survival standards set forth in such agreement by 2013. These initial and any subsequent Implementation Measures may be modified or supplemented as part of the Adaptive Management process. Changes shall occur through consultation with the PRFF or PRCC, as appropriate for the fish species. For non-Covered Species, Grant PUD shall initiate the consultation process (described below) in a timely manner following receipt of a written request for modification or supplementation by a PRFF member. Grant PUD shall incorporate Implementation Measures and any modifications into the appropriate Fish Management Plan(s).
- b) Fish Management Plans. Grant PUD shall, within six months of effective date of the New License, submit to the PRFF draft management plans for white sturgeon, Pacific lamprey, bull trout, and native resident fish. Such initial plans shall be in accordance with the Biological Objectives and Implementation Measures identified in the fish management plans outlined in Appendix C of this Certification. Grant PUD shall consult with the PRFF and submit final plans no later than 12 months after the effective date of the license. Grant PUD shall implement the actions identified in the approved Fish Management Plans. Implementation shall occur within the timeframes described in the Fish Management Plans, unless otherwise agreed to by the PRFF. Fish Management Plans may be updated periodically following the

consultation process (described below) as appropriate to address changes to the implementation measures above, and other relevant changes such as changes in conditions or technology.

- c) Year Five Biological Objectives Status Report. By no later than August 30 of Year Five, Grant PUD shall, through consultation with the PRFF, develop a Biological Objectives Status Report and provide a copy to Ecology, that:
- Summarizes the results of monitoring and evaluation program, and evaluates the need for modification of the program;
 - Describes the degree to which each Biological Objective has been achieved, and if not, the prospects for achieving those objectives in the next reporting period;
 - Reviews management options (both operational and structural) taken to meet those Biological Objectives, and;
 - Recommends any new or modified implementation, monitoring and/or evaluation measures that are needed to meet any of the Biological Objectives, to the extent reasonable and feasible. Such recommendations shall contain a schedule for timely implementation.
 - Ecology will issue a decision to approve or remand for further development the report and recommendations.
 - Grant PUD shall implement the measures identified in the final report.
- d) Year Ten Biological Objectives Status Report. By August 30 of Year Ten, Grant PUD shall, following consultation with the PRFF, provide Ecology with a report containing the information required in the Year Five Report, but covering the first ten years after the effective date, and including any additional information necessary to make a determination on whether any or all of the Biological Objectives have been achieved. The Year Ten report shall include recommendations for future status reports and monitoring regarding biological objectives. Ecology will issue a decision to approve or remand for further development the report and recommendations.
- e) Biological Objective Not Met. Following the issuance of the Year Ten status report, if Ecology concludes that a Biological Objective for Non-Settlement Species has not been met, Grant PUD shall continue to implement the Adaptive Management process in accordance with this section (and Subsection 6.1 21) until the Biological Objective has been attained or is modified. A Biological Objectives Status Report shall be

prepared in consultation with the PRFF and PRCC and submitted to Ecology by August 30 every five years for the remaining life of the new license (and annual renewals of that license) until all Biological Objectives are met. Grant PUD shall implement the measures identified in these reports.

- f) Biological Objectives Met. Once a Biological Objective (including any modified Biological Objectives per g below or any new Biological Objectives per h) is met as determined by Ecology, the actions needed to maintain attainment of the Biological Objective shall be continued through the term of the New License. Monitoring shall be continued and the results posted annually on Grant PUD's website or equivalent no later than August 30 of each year. Biological Objectives Status Reports shall be prepared by Grant PUD in consultation with the PRFF by August 30 every ten years. In the event that Grant PUD has reasonable basis to know that any of the Biological Objectives ceases to be met, it shall provide written notification to all PRCC and PRFF members and to Ecology as soon as it has knowledge of that situation. Monitoring to determine attainment of Biological Objectives shall continue throughout the life of the New License, including any subsequent annual licenses.
- g) Modification of a Biological Objective. If, at any time following the issuance of the Year Ten Biological Objectives Status Report, the PRFF or PRCC concludes that a Biological Objective cannot be met in part or whole despite its having undertaken all reasonable and feasible measures to meet that objective, the PRFF or PRCC may petition Ecology to approve a change in a Biological Objective, either to modify or eliminate the objective. Grant PUD shall draft the report in consultation with the PRFF or PRCC (as appropriate) and provide a report on such consultation to Ecology.
- h) New Biological Objectives. New Biological Objectives may be developed as determined to be necessary by the PRFF or the PRCC, or by Ecology, under Subsection 6g below.

6) **Consultation with PRFF**

Grant PUD is to consult with the PRFF as part of the development or modification of Biological Objectives, Implementation Measures, Fish Management Plans, and Biological Objectives Status Reports as provided below:

- a) PRFF Formation. Grant PUD shall contact the tribes and agencies with fish management authority and request the name of the designated staff person and alternate(s) to participate in the PRFF meetings as voting members. To

be a member, entities should agree to participate and to attempt to resolve issues by consensus. Grant PUD shall provide the name(s) to Ecology, and provide updates as the names change.

- b) PRFF Authorities under this Certification. For purposes of this Certification, the PRFF shall serve as a forum to implement this section 6.2 of the Certification for non-Covered species and to consider issues that arise as part of that implementation. Specifically, Grant PUD shall consult with the PRFF on the following: modification or addition of Biological Objectives; development, implementation, and modification of Implementation Measures; development, implementation, and modification of the fish management plans; development of the Biological Status Reports; and such other matters as Ecology may designate by order. This Certification does not prevent Grant PUD from consulting with the PRFF on issues outside this Certification at their own discretion.
- c) PRFF Membership and Support. Grant PUD shall convene the entities eligible to participate on the PRFF. Those willing to participate, on a part or full time basis, shall be deemed the members of the PRFF. The members may establish operating procedures, which they may adjust from time to time, consistent with this Certification, as they determine will assist in the orderly, effective and efficient administration of its actions with respect to activities under this Certification. The operating procedures are intended to provide general methods of coordination among members of the PRFF. The procedures cannot supersede any aspects of this Certification.
- d) Facilitation. Grant PUD shall provide such facilitation, administrative and clerical support to the PRFF as is reasonably needed to accomplish the requirements of this section of the Certification. Within three months following issuance of the New License, Grant PUD shall convene the PRFF for the purpose of selecting, by consensus, a neutral third party to facilitate, administrate and provide clerical support for the PRFF meetings. The facilitator shall be the official contact person of the PRFF members to the stakeholders. Grant PUD shall provide draft notes of each meeting for comment to PRFF members, and incorporate comments provided by reviewers into the final meeting notes.
- e) Document Preparation and Review. For all documents that Grant PUD is required to prepare under this section and for proposals for modifications or additions to Biological Objectives, Grant PUD shall prepare a draft of the report or proposal and submit it to all PRFF members and interested parties for review and comment. Grant PUD shall prepare the documents sufficiently in advance to allow adequate time for review in order to meet the timelines of this Certification. Any documents developed in association with the documents identified above shall also be provided in a timely

manner. In scheduling for member review of the draft final Biological Objectives Status Reports, the review period shall be up to 60 days, with an option for a 45-day extension (determined by the PRFF), with the final report due 120 days after the draft was released.

Members of the PRFF (including Grant PUD) are expected to use the most current and best available scientific information and analysis as the standard of care for preparing and reviewing documents and implementing this Certification. In the event that members advocate two or more alternatives to a study methodology or measure, the members are expected to evaluate and select the action based on the following criteria: 1) likelihood of biological success; 2) time required to implement; and 3) cost effectiveness of solution, but only where the parties agree that two or more alternatives are comparable in their biological effectiveness.

After completion of discussions on a document required under this Certification, Grant PUD shall submit the final document to Ecology. If consensus was not reached, the document shall include all comments and alternative recommendations from PRFF members. Grant PUD shall provide additional existing documentation to Ecology, upon request.

Grant PUD shall provide PRFF members copies of all submissions made to Ecology.

- f) Regular PRFF Meetings. Where consultation with the PRFF is required in this section, Grant PUD shall convene a meeting(s) of the PRFF, with sufficient time in advance to meet its deadlines for submittal of the documents and implementation of the measures. The timeline is subject to review and approval by Ecology. Meetings shall be open to interested parties to observe, with time to comment, following rules established by the PRFF in the operating protocols. The document(s) to be discussed shall be provided sufficiently in advance for thorough review by the members prior to the meeting. An agenda shall be provided to all members and interested parties at least seven days prior to each meeting. The agendas shall list the subjects to be discussed, indicating the issues to be decided at the meeting. When a member is unable to have either its designated representative or alternate at a meeting, or needs additional time to determine its organization's position on a proposed decision or recommendation, and would like additional time, Grant PUD shall reschedule final action, one time for each member, on any such decision or recommendation. The total delay for the proposed decision or recommendation shall not exceed 60 days.

The meeting or meetings shall be used to discuss items on the agenda and, where needed, attempt to reach consensus among members of the forum.

Consensus shall mean the unanimous agreement of all members present in person or by phone. Voting shall be recorded and confirmed by meeting notes. Multiple meetings may be held to thoroughly discuss the issues, before a final determining vote is made. Nothing herein prohibits members from meeting separately and/or with technical experts to discuss issues.

Within ten days following each meeting, the facilitator shall distribute a draft meeting notes to PRFF members and other attendees identifying attendees (present either in person or by phone) and summarizing discussions, listing any decisions made at that meeting, and listing any new action items. Attendees may provide corrections to the facilitator, who may either amend the document or attach the proposed corrections, and then distribute the final document with any attachments to Ecology, PRFF members and interest stakeholders within 30 days following the meeting date.

- g) Final Determination. Unless otherwise provided for herein, a decision made by consensus of the PRFF shall be final and shall not require Ecology's approval. Implementation measures and fish management plans agreed to by consensus shall not require Ecology approval; biological status reports, determination of whether a Biological Objective has been attained or not, and changes to Biological Objectives shall require Ecology approval even if agreed to by consensus. However, Ecology reserves the right to overrule a decision made by consensus if it determines that such decision is inconsistent with state water quality standards or other appropriate requirements of state law.
- h) Immediate or Urgent Near Term Action. If, at any time, a member of the PRFF or PRCC determines that immediate or urgent near term action is needed by Grant PUD for protection of an aquatic resource affected by the Project, they may contact Ecology in writing or by e-mail. The member may contact Ecology or any other member of the PRFF or PRCC, as well. Once notified by Ecology, Grant PUD shall contact the other members of the PRFF or PRCC (as appropriate) within 48 hours to notify them of the request and ask for comment and/or recommendations. Grant PUD shall provide such information to Ecology immediately upon receiving any comments of recommendations. Grant PUD shall also provide information about any potential conflicts of any proposed actions with other state, federal or tribal laws. If, based on the information available, Ecology determines that immediate action is needed to protect the resource, and such action does not conflict with another law, Grant PUD shall immediately perform such action.

6.3 HANFORD REACH

1) Purpose

The general purpose of this section 6.3 is to support the protection of fall Chinook in the Hanford Reach, including spawning and rearing. The Hanford Reach Agreement and the Salmon Agreement provide a basic framework for future investigations, management decisions, and actions under this section. It is expected that the studies and other actions required herein will be available to assist in decision-making among system operators and other stakeholders that may occur in conjunction with the 2014 re-opener date of the Hanford Reach Agreement.

2) Hanford Reach Agreement and Salmon Agreement

Grant PUD shall continue to operate under the Hanford Reach Agreement and Salmon Agreement in managing flow and flow fluctuations (e.g., ramping rates) to address fish resource impacts downstream of the Priest Rapids dam, including the Hanford Reach, unless otherwise modified under this Certification. If either agreement is replaced, modified, or terminated, Project operations shall, to the extent reasonable and feasible and within Grant PUD's control, continue to provide at least an equivalent level of protection of water quality, including protection of existing and/or designated uses, as provided under the existing agreement. To ensure such level of protection, if either agreement is replaced, modified or terminated, Grant PUD shall, within three months of such replacement, modification or termination, submit to Ecology for approval, a project operations plan that will provide at least an equivalent level of protection of water quality, including protection of existing and/or designated uses, as provided under the existing plan.

3) Obligation to Address Impacts to the Hanford Reach

If the best available science shows that flow fluctuations allowed under the existing Hanford Reach Agreement, or as exist if such agreement is replaced, modified, or terminated, are causing significant harm to designated uses in the Hanford Reach, and the Project contributes to such flow fluctuations, then the Grant PUD shall to the extent reasonable and feasible adaptively manage Project operations to address its contribution. Such measures shall be taken as part of an adaptive management process and, to the maximum extent possible, incorporated into and coordinated with measures identified in the Hanford Reach Agreement and Salmon Agreement.

4) **Consultation**

Grant PUD shall undertake actions required in this section in consultation with an advisory group called the Fall Chinook Work Group (FCWG). The FCWG shall consist of all members of the PRCC, parties to the Hanford Reach Agreement, and other interested stakeholders. Grant PUD shall record minutes of all meetings of the FCWG, circulate draft minutes to work group members for comment, and incorporate comments in the final minutes. Grant PUD shall include, with any plans or reports required in this section, documentation of consultation with the FCWG, copies of comments received by the members, descriptions of how the comments are accommodated, descriptions of the basis for any disagreements, and the position and rationale of the members on that issue. Ecology shall give deference to decisions made by consensus of the FCWG on items required in this section of the Certification when evaluating compliance with water quality standards (including Biological Objectives). If the PRCC ceases to exist or to operate effectively on subjects of this Certification, consultation may default to another working group, at the discretion of Ecology. All deadlines provided in this section may be extended upon written approval of Ecology.

5) **Study of Grant PUD Contribution to Flow Fluctuation in the Hanford Reach**

No later than six months after the effective date of the New License, Grant PUD shall develop, in consultation with the FCWG and Ecology, and submit to Ecology a report which evaluates the extent to which the Project contributes to daily flow fluctuations below the Project in the Hanford Reach of the Columbia River. Flow fluctuation is defined as the difference between the highest and lowest water elevations in daily water levels over a twenty-four hour period beginning at midnight below the tailrace of the Project. Grant PUD shall determine the contribution of the Project, if any, by comparing the flow fluctuation existing under the Project to the modeled flow fluctuation that would exist if the dams and reservoirs were absent. Ecology will review this report and may, if necessary, require supplementation or revision.

6) **Studies Related to Monitoring and Better Understanding of Impacts on Fall Chinook in the Hanford Reach**

The studies provided for in this subsection (6) are intended to complement existing and proposed studies on Project impacts of operations under the Hanford Reach Agreement on fall Chinook in the Hanford Reach.

- a) Study Identification. No later than three months of issuance of the New License, Grant PUD shall convene the FCWG for purposes of identifying additional studies that are of significant importance to monitor and better understand impacts on fall Chinook of flow fluctuations resulting from operations under the existing provisions of the Hanford Reach Agreement. Studies identified shall include a controlled flow study to evaluate effects of different flow fluctuation bands and timing on Fall Chinook. Generally, priority should be given to studies that are capable to be completed prior to the 2014 re-opener of the Hanford Reach Agreement, but longer term studies of significant priority are also eligible for inclusion.
- b) Comment Period on Study Plan. No later than six months after license issuance, Grant PUD shall circulate for a minimum 60-day comment period a draft plan to the FCWG that identifies, with priorities, the studies identified above, including study proposals and priorities proposed by FCWG members.
- c) Study Plan. Following receipt of the comments, Grant PUD shall further consult with FCWG members to reconcile or to narrow differences, and thereafter, within one year of license issuance, submit a proposed study plan to Ecology for its approval, with copies to the FCWG. The proposed plan shall include, among other things, a detailed responsiveness summary for any study proposals that Grant PUD has not accepted or has modified. The plan shall also identify how Grant PUD proposes funding each study.
- d) Studies Proposed to be Funded in Part or Whole by Other Entities. Following Ecology's approval or modification of the study plan, Grant PUD shall proceed to identify the funding source or sources for the proposed studies that Grant PUD will not solely fund. As soon as such funding has been identified, Grant PUD shall notify Ecology in writing. If Grant PUD cannot secure adequate funding for a study, it shall so report to Ecology no later than 90 days following Ecology's decision on the proposed study plan. The report shall identify all efforts Grant has made to obtain such funding. Ecology will then provide directions, such as requiring Grant PUD to: a) pursue further funding efforts; b) develop an alternative study design for which funding may be available; c) fund the study itself; d) table the study to a later date; or e) drop the study from the plan..
- e) Draft Study Design. Within 120 days after Ecology identifies the studies necessary to inform compliance of the Project with water quality standards (and funding has been obtained, if non-Grant PUD funding is needed), Grant PUD shall submit to Ecology and the FCWG a draft study

design and schedule for each study. The FCWG shall have a minimum 60-day comment period, which Ecology may extend in writing.

- f) Final Design. Within 60 days after the end of the comment period, Grant PUD shall provide a final study design and schedule (with a responsiveness summary) to Ecology for its approval, with copies to the FCWG. Upon Ecology approval or modification, Grant PUD shall implement the study as per the approved design and schedule.
- g) Report. Within 60 days of the end of the study, Grant PUD shall provide a report of the study results, in accordance with the schedule within the final approved plan. The plan shall be provided to the FCWG for review and comment. After consultation with the FCWG, Grant PUD shall submit the final report to Ecology.

7) **Potential Implementation Measures for Fall Chinook.**

Based on the results of the above studies and other existing information on impacts of flow and flow fluctuations on fall Chinook Grant PUD, in consultation and coordination with the FCWG, shall evaluate potential measures to avoid, reduce, or mitigate such adverse impacts and, if appropriate, provide for implementation of such reasonable and feasible measures in cooperation with other affected entities.

- a) Implementation Feasibility Study. Within three years of license issuance, Grant PUD shall, in consultation with the FCWG, prepare a study report that includes the following:
 - A comprehensive list of potential measures that may avoid, reduce, or mitigate the adverse impacts on fall Chinook in the Hanford Reach.
 - An evaluation of each measure in terms of its reasonableness and feasibility. The evaluation shall consider benefits and effectiveness of the measure and costs of implementation, including any non-monetary costs, such as impacts to other environmental resources, recreational impacts, and impacts on historical and cultural resources. Other factors *may* include, for example, regional factors such as hydropower flexibility and reliability, transmission constraints, and tradeoffs related to replacement of energy. Feasibility shall be determined in accordance with such guidance as is developed by Ecology or as determined by Ecology to be relevant. The evaluation shall also consider Grant PUD's existing obligations and the results of the study described in Subsection 5 above. The evaluation shall include a list of measures that Grant PUD concludes are reasonable and feasible.

- A tentative schedule for implementation of each reasonable and feasible measure.
 - Grant PUD shall submit a draft copy of the study to the FCWG for a comment period of no less than 90 days. Grant PUD shall incorporate the comments and submit the report to Ecology for review and approval within 60 days of the end of the comment period. After Ecology reviews the report, Ecology may require further supplementation or approve the report subject to modifications. Ecology shall make the final determination of which measures are deemed reasonable and feasible for Grant PUD to accomplish and implement.
- b) Implementation Plan. Within six months of Ecology's approval or modification of the implementation feasibility study report, Grant PUD shall prepare and submit for Ecology approval a plan to implement such measures that were approved for implementation. Such plan shall be developed in consultation and coordination with the FCWG, who shall be provided a 60-day comment period on a draft plan. If a measure involves a cooperative effort among other mid-Columbia hydropower owner/operators, the plan shall identify steps to be taken to obtain such agreement or cooperation. To the extent that Grant PUD believes that the Hanford Reach Agreement prevents implementation of any such new management measures prior to 2014 and delay of implementation would not significantly adversely affect the fall Chinook resource, Grant PUD may request Ecology to so delay implementation.
- c) Implementation. Upon Ecology's final approval or modification of the implementation plan(s), Grant PUD shall proceed as provided in any approved implementation plan to implement or work with other entities to seek to implement the measures, as determined by Ecology. Grant PUD shall coordinate with the FCWG on the implementation of the measures identified above. If it is not possible to reach agreements with other entities that are necessary for full implementation of a measure, Grant PUD shall implement such measure to the extent that the measure addresses Grant PUD's proportionate responsibility for the impact.

6.4 TOTAL DISSOLVED GAS

1) General Conditions

- a) Standards. The primary purpose of the following conditions is to achieve water quality numeric criteria for TDG, while protecting aquatic uses. The Project shall comply with the standards found in WAC 173-201A, as

further described in this Certification. Upon completion of the compliance period, Grant PUD shall operate the project in full compliance with the state water quality standards.

- b) Fish Spill Season. For purposes of compliance, the “fish spill” season, found in Ecology regulations (WAC 173-201A), shall be designated to occur from April 1 through August 31; and “non-fish spill” season shall be designated to occur from September 1 to March 31, unless otherwise specified in writing by Ecology. Should spill for fish cease to be required by the fish agencies, the regulatory exemption for elevated levels of TDG occurring during fish spill shall no longer be applicable.
- c) Minimizing Spill. Grant PUD shall manage spill at Wanapum and Priest Rapids dams toward meeting water quality criteria for TDG, as reasonable and feasible, and without further damaging aquatic life, as follows:
- Minimize voluntary spill through operations, including to the extent practicable, by scheduling maintenance based on predicted flows;
 - Avoid spill by continuing to participate in the Hourly Coordination Agreement, of any successor agreement to which Grant PUD is a party, to the extent the agreement reduces TDG; and
 - Maximize powerhouse discharge, especially during periods of high river flows.
- d) Elevated Incoming TDG Levels. Even though TDG levels in the tailrace exceed numeric criteria, a dam may be deemed in compliance with the water quality standards for TDG, if both the following apply:
- TDG levels in the dam’s forebay exceed 110% during non-spill season or 120% during fish spill season, and
 - The dam does not further increase TDG levels in the tailrace.
- e) Changes in Operation or Structure. Grant PUD shall provide Ecology with the opportunity to review and condition any non-routine operational or structural changes affecting TDG that are not identified in this Certification. If Grant PUD, at any point, considers or chooses not to implement any of the measures identified in Table 1, Grant PUD shall immediately notify Ecology and include proposed alternative(s) that will produce levels of TDG equal to or less than those estimated to be produced by the measures to be replaced. These measures should be implementable in a similar timeframe. They should also provide equal or better protection for aquatic species, as determined by the PRFF and PRCC.
- f) TDG TMDL. The Project shall be deemed in compliance with the TDG TMDL while it remains in compliance with the terms of this Certification.

2) **General Interim Conditions**

- a) Implementation Measures. In order to attain compliance with the State Water Quality numeric criteria, Grant PUD shall implement the measures identified in Table 1 in accordance with the schedule shown in that table. Grant PUD shall also implement the studies in Subsections 3 through 9 to evaluate compliance with the predicted TDG levels. If, after any of these studies, Ecology determines that additional measures are needed, Grant PUD shall perform a feasibility study to identify appropriate measures and implementation, as described in Subsection 12. Where compliance is not attained, or does not appear likely to be attained, additional adaptive management measures may be required.

- b) TDG Target Values. Table 1 describes the target levels predicted to result from implementation of the various compliance activities (e.g., installation of fish bypass). The values in Table 1 were derived from the study results, shown in Appendix B [of this certification] and described in the Findings for TDG (Section 5.0 1). Note that the target values will be based on the new FMS [fixed monitoring sites] (see Section 6.4 10 for description), to be established below (Subsection 10(a)), whereas the predicted values were based on measurements made existing FMSs.

Table 1: TDG Compliance Schedule and Activities <i>with</i> Target TDG Values					
		During Non-Fish Spill, Throughout Reservoir	During Fish Spill, at Downstream Dam	During Fish Spill in Tailrace, 12 hours	During Fish Spill in Tailrace, single hour
	TDG Numeric Criteria* (% TDG)	110%	115%	120%	125%
Compliance Schedule	Compliance Activities				
Wanapum Dam					
Current	Dam with deflectors	98.6	118	120	125
2008	Unit #11 Bypass	98.7	116.5	120	125
2012	Bypass and Adv. Turbines	99.2	115	120	125
Year 10		100%	115	120	125
Priest Rapids Dam					
Current	Dam	97.6	115	121.0	125
2010	Bypass Facility	98.1	115	120	125
Year 10		100%	115	120	125
Notes:					
*For flows less than 7Q10 (264 kcfs).					

3) Wanapum Dam Bypass Installation and Studies

- a) Installation. Grant PUD shall complete the installation of the Future Unit #11 Fish Bypass Facility at Wanapum Dam in accordance with a FERC Order, as conditioned by Ecology's certification and Order No. 1951 (February 8, 2005). The installation is expected to be completed in 2008.
- b) Change in Fish Bypass Operational Flows at Wanapum Dam. Modeling calculations provided by Grant PUD in Table 1 are based on an assumption that the fish bypass facility will pass 20 kcfs at optimum operating capacity. If the operation is at less than 20 kcfs, Grant PUD shall proceed with measures to offset any resulting increases in TDG, subject to Ecology review and approval.
- c) Field Study. After construction of the Future Unit #11 Fish Bypass Facility, Grant PUD shall, no later than June 30, 2009, complete a field study of controlled operating conditions to quantify the TDG exchange associated with the bypass channel chute, as described in Subsection 8. Grant PUD shall provide a draft study plan to Ecology for review by December 30, 2008 and a final study plan, incorporating Ecology's comments, by March

30, 2009. The draft report shall be provided by September 30, 2009 and the final report, incorporating Ecology's comments, by December 31, 2009.

- d) Performance Criteria. If the bypass does *not* meet the performance criteria in Table 1, Grant PUD shall conduct a feasibility study with subsequent implementation in accordance with Subsection 12.

4) **Wanapum Dam Turbines Installation and Studies**

- a) Installation. Grant PUD shall continue with installation of the Advanced Turbines at Wanapum Dam pursuant FERC Orders, as conditioned by Ecology's 401 certification and Order No. 1026 (March 12, 2004). The installation is expected to be completed by 2012.
- b) Field Study. Following installation of the 10th advanced turbine at Wanapum Dam, Grant PUD shall re-evaluate the performance, using a study as described in Subsection 9 below, to compare performance with that predicted in Table 1. Grant PUD shall provide the draft study plan to Ecology by July 30, 2012 and the final study plan, incorporating Ecology's comments, by September 30, 2012. Grant PUD shall implement the study, and provide the draft report to Ecology by August 30, 2013. After Ecology's review, Grant PUD shall incorporate Ecology's comments into the final report by September 30, 2013.
- c) Performance Criteria. If the turbines do *not* meet the performance criteria in Table 1, Grant PUD shall investigate modifications to address the performance issue(s) for Ecology's review. If, after review and/or implementation of these modifications, the turbines still do not meet the performance criteria in Table 1, Grant PUD shall perform a feasibility study and subsequent implementation, in accordance with Subsection 12.

5) **Wanapum Dam Year 8 Study**

Six months prior to Year 8 after license issuance, Grant PUD shall provide to Ecology a written evaluation of whether the dam is fully in compliance with TDG standards or is reasonably expected to be fully in compliance by Year 10 of the license. If standards are not fully met or expected to be fully met by Year 10, Grant PUD shall prepare and submit to Ecology a feasibility study as described in Subsection 12 below, prior to the beginning of Year 8, followed by preparation of an implementation plan and implementation of identified measures, as needed.

6) **Priest Rapids Dam Bypass Installation and Studies**

- a) Investigation and Installation. In consultation with the PRCC and PRFF, Grant PUD is to investigate design options, including computational and model studies, and install and complete the bypass facilities by December 31, 2010, or at such alternate date agreed to by the PRCC and the PRFF, subject to approval by Ecology. Modeling calculations provided by Grant PUD in Table 1 are based on an assumption that the fish bypass facility will pass 40 kcfs at optimum operating capacity. If the operation is to be less than 40 kcfs, Grant PUD shall incorporate measures to offset any resulting increases in TDG, subject to Ecology review and approval.
- b) Field Study. Within one year following construction of the bypass, Grant PUD shall complete a short-duration field study of controlled operating conditions to quantify the TDG exchange associated with the bypass channel chute at Priest Rapids Dam, as described in Subsection 8 below. Grant PUD shall provide a draft study plan to Ecology for review by December 31, 2010 and a final study plan, incorporating Ecology's comments, by March 30, 2011. The draft report shall be provided by October 30, 2011 and the final report, incorporating Ecology's comments, by December 31, 2011.
- c) Performance Criteria. If the bypass does *not* meet the performance criteria in Table 1, Grant PUD shall conduct a feasibility study with subsequent implementation in accordance with Subsection 12.

7) **Priest Rapids Year 5 Study**

Six months prior to Year 5 after license issuance, Grant PUD shall provide to Ecology a written evaluation of whether the dam is fully in compliance with TDG standards or is reasonably expected to be fully in compliance by Year 10 of the license. If standards are not fully met or expected to be fully met by Year 10, Grant PUD shall prepare and submit to Ecology a feasibility study, as described in Subsection 12 below, prior to the beginning of Year 5, followed by preparation of an implementation plan with implement as needed.

8) **Content of Bypass Studies and Reports**

- a) TDG Study. After construction of the Bypass Facility, Grant PUD shall, in accordance with the above schedule, complete a short duration field study of controlled operating conditions to quantify the TDG exchange associated with the bypass channel chute. The purpose of this study is to provide details regarding TDG production by the bypass channel chute and entrainment of powerhouse water into the spillway at the FMS. Information collected during the short-term fixed array studies would provide the basis

for interpreting data routinely collected at FMSs located above and below Wanapum Dam and to evaluate actual performance with engineering and model predictions in Table 1.

- b) Fish Passage and Survival Studies. Grant PUD shall consult with the PRFF and PRCC to identify and implement appropriate studies to evaluate fish passage and survival.
- c) Report. Grant PUD shall provide Ecology with a summary of the results of the TDG study in accordance with the above schedules. The summary shall identify any situations where the management activities related to meeting TDG criteria are impacting the achievement of fish passage or survival objectives. If the fish passage facility does not meet the calculated TDG levels in Table 1 or it detracts from achieving the dam passage survival standard, the report shall include proposed modifications to the design that address the performance issues identified in the study. A draft of the summary shall be submitted to PRFF and PRCC for consultation. Grant PUD shall provide the summary and results of the consultation to Ecology.

9) **Content of Turbine Studies and Reports**

- a) TDG. At a minimum, Grant PUD shall collect the following information on TDG. Additional information will be required by Ecology as part of this study.
 - Spill. During the fish spill season, compile data collected from the FMSs in the forebay and tailwater of the dam and at the tailrace monitoring location. Transect studies may be needed as well.
 - Turbine-Generated TDG. Perform a transect study to evaluate TDG across the powerhouse channel and at the tailrace monitoring station during periods when the dam is not spilling. During the study, the turbines shall be operated between minimum and maximum capacity within the cavitation limits and normal operating elevations. The test shall be designed to determine whether the new turbine will materially affect TDG during normal operations.
- b) Fish Survival. Develop and implement a fish survival study and final report, in consultation with the PRCC and PRFF, to determine whether the survival for migrating smolts transported through the turbines is equivalent to or better than survivals associated with the previous units.
- c) Report. The report shall include the results of both the TDG studies and the fish survival study.

10) Compliance Monitoring

- a) Compliance Monitoring Locations for Forebay and Tailrace. Grant PUD shall measure compliance with the TDG criteria at the FMS in the forebays of the Priest Rapids and Wanapum dams, and tailwaters of Wanapum and Priest Rapids dams. For Wanapum dam, the tailrace and 110% FMSs shall be located 2000 feet downstream of the dam. For Priest Rapids dam, the tailrace and 110% FMS shall be located 1500 feet downstream of the dam. If monitoring for TDG is not feasible in these locations, as demonstrated by Grant PUD and approved by Ecology, then Grant PUD shall identify alternative monitoring locations, subject to approval by Ecology. TDG monitoring may rely on the regression relationship (indexing) between the FMS locations and beginning of the compliance area below each development. Grant PUD shall, within one year after issuance of the New License, propose a method and schedule for Ecology's approval for establishing the new FMSs, with indexing as needed, and implement in accordance with that schedule.
- b) Priest Rapids Dam Downstream Interim Compliance Point. The Pasco site (FMS RM 329.1) shall serve as an interim compliance point (until an alternate location is identified and approved) for the 115% criterion defined in the water quality standards as the "forebay of the next dam downstream" for the Priest Rapids dam. This location was chosen to measure mixed river gas conditions before dilution or concentration with the waters of the Snake River. This site is currently maintained by the next downstream operator (Corps). If no alternative location is found, Grant PUD shall develop a contingency plan for access, maintenance, and data management for the site, in the unlikely event the Corps will no longer maintain the Pasco FMS.
- c) QA/QC. Grant PUD shall maintain a TDG monitoring program at its FMS locations. The TDG monitoring program shall be at least as stringent as the quality assurance/quality control (QA/QC) calibration and monitoring procedures and protocols developed by the USGS monitoring methodology for the Columbia River.
- d) Frequency. Measurements shall be made hourly at the FMSs throughout the year.

11) Periodic Reporting

- a) Hourly data. Hourly TDG information at the FMS shall be made available electronically to the public as close to the time of occurrence as technology will reasonably allow.

- b) Notification. Grant PUD shall notify Ecology within 48 hours of the beginning of any period of spill for fish. The initial notification may be electronic or written.
- c) Annual Report. By October 31 of each year, Grant PUD shall provide Ecology with an annual summary of the results of the Priest Rapids Project spill and TDG management activities for the previous year. This report shall include:
- flow and runoff descriptions for the spill season;
 - spill quantities and duration;
 - quantities of water spilled for fish versus spill for other reasons for each project;
 - data from the physical and biological monitoring programs, including:
 - a summary of exceedances of the values shown in Table 1 (or other updated values) for each dam,
 - causes of the exceedances, and
 - a description of what was done to correct the exceedance;
 - progress on TDG implementation measures; and
 - monitoring and compliance for fish passage efficiency and survival under the Salmon Agreement and as otherwise required for non-Covered Species under this Certification.
- d) Fish Survival Reports. Grant PUD shall provide periodic updates to Ecology on progress made to attain the dam passage survival objective under the BiOp Amendment and shall provide to Ecology a copy of the annual and triennial progress and evaluation reports prepared pursuant to the BiOp.
- e) Gas Abatement Plan (GAP). A draft GAP shall be submitted to Ecology annually for review by October 31; Ecology's comments shall be incorporated in the final GAP by February 1 of the relevant year. The GAP shall be revised annually to reflect any of the changes required in accordance with this Certification (e.g., an Implementation Plan; see Subsection 12). The GAP shall include information on any new or improved technologies. The GAP shall be accompanied by an up-to-date operations plan, a fishery management plan, a physical monitoring plan, and a biological monitoring plan (e.g., for gas bubble trauma). The plan should include results of any survival studies for the previous year (per Subsection d above).

- f) Compliance GAPs. Upon attainment of compliance with the TDG standards during non-fish spill season and the special TDG standards during fish spill, beginning in the year of compliance and every ten years thereafter, an updated GAP shall be prepared, and include, in addition to information on any new or improved technologies, a review of reasonable and feasible gas abatement options to further incrementally reduce TDG production. If any reasonable and feasible measures are identified, an implementation plan shall be provided to Ecology for review and approval, and implemented, in accordance with Subsection 12.

12) Feasibility Study and Implementation

- a) Feasibility Study. The feasibility study shall identify all potentially reasonable and feasible measures that could be used to meet standards or, if meeting the standards is not attainable, then to achieve the highest attainable level of improvement. A detailed analysis of each measure examined shall be provided. The feasibility analysis shall include evaluation of alternatives to eliminate or substantially reduce spill resulting from under-utilization of powerhouse capacity.
- b) Implementation Plan. Based on the results of the study, an implementation plan shall be prepared, which shall include a comprehensive, robust strategy for achieving compliance with TDG on as accelerated a schedule as is practicably achievable. After review and approval, including any needed modification, of the implementation plan by Ecology, Grant PUD shall develop the engineering design, as needed, for the modifications proposed to achieve compliance or achieve the highest attainable improvement.
- c) Implementation. The feasibility study, implementation plan, and implementation measures shall be completed on as accelerated a schedule as is practicably achievable, as approved by Ecology.
- d) Incorporation into GAP. The Ecology-approved implementation plan(s) are considered to be conditions of the GAP and shall be incorporated into, and implemented under, the next annual GAP under Subsection 11.

13) Compliance Actions After Year 10

- a) Compliance with Numeric Criteria. If prior to the end of Year 10, Grant PUD has demonstrated to Ecology's satisfaction that the Project is able to meet and continue to meet state TDG numeric criteria consistently with the provisions of this Certification, Ecology will consider the compliance schedule established herein to have been successfully concluded with

respect to TDG special conditions numeric criteria and will consider make any appropriate changes to reduce or ease the burden of reporting and monitoring requirements.

- b) Non Compliance with Numeric Criteria. If Grant PUD has not demonstrated that it will consistently meet the TDG numeric criteria at the FMSs after Year 10, Grant PUD shall prepare an updated and revised feasibility study and implementation plan in accordance with the procedures in Subsection 12. Ecology reserves the right to require additional measures and use all available compliance tools, including penalties, as appropriate.

6.5 TEMPERATURE

1) Monitoring

The Priest Rapids Project shall comply with all relevant and applicable state water quality standards and provide a temperature monitoring program through a QAPP developed under the conditions described in Subsection 6.7. However, until (1) such time that EPA approves a TMDL which establishes a project temperature allocation less than 0.3°C, or (2) if one is not timely approved, Ecology establishes such allocation by order, or (3) a new regulation establishes a different standard, the project allocation of 0.3°C shall apply when temperatures are above 18°C (above the Priest Rapids dam) or 20°C (below the Priest Rapids dam).

2) Temperature Modeling

In the sixth year after the new license takes effect, Grant PUD shall run the MASS1 model to evaluate the Project compliance with temperature standards with the data collected in the first five years of the license. Grant PUD shall evaluate, as feasible, the causes of any modeled exceedances. The PUD shall provide a report to Ecology summarizing the results of the ten years of monitoring and modeling (first five years of the license plus five previous years). The input data, modeling, and results shall be subject to a peer review and review by Ecology in a draft report submitted six months prior to the final report is due. Grant PUD shall provide the final report to Ecology in Year Seven.

Ecology may order further modeling or accuracy analysis be done in additional years. Any further temperature modeling of waters within the Project area shall use the best available scientific information, methods, and analysis that are

generally accepted in the scientific community for modeling impounded and open-river conditions.

3) **Evaluation**

Upon receipt of the report in Year 6, Ecology will evaluate whether the project is causing or is likely to cause increases over 0.3°C or is causing or is likely to cause increases in violation of the allowance provided by regulations when temperatures are above 18°C or 20°C. If Ecology so determines, it will order Grant PUD to conduct an evaluation, subject to peer review, of any reasonable and feasible measures that Grant PUD may take to eliminate or reduce such events. Such evaluation shall identify all potentially reasonable and feasible alternatives to eliminate or reduce such increases, the effectiveness and costs of such alternatives, and the potential biological benefits of the temperature reduction. Upon review of such evaluation, Ecology will determine whether any measures are reasonable and feasible to implement, and order any further studies or implementation actions as appropriate. Any implementation actions will use an Adaptive Management approach.

4) **Temperature TMDL**

Ecology anticipates that the EPA will issue a temperature TMDL for the Columbia River at some future date. Where they are more protective, provisions of the temperature TMDL and implementation plans relevant to Priest Rapids Hydroelectric Project and its operations, including specified time frames for implementing improvement measures, as specified in a future order of Ecology, shall supersede the conditions of this Order. If a TMDL is not timely approved, Ecology reserves its right to establish such allocation by order. Such order will set forth the process for evaluating reasonable and feasible measures to comply with or reduce excursions from the allocation, and following that, the process to implement selected improvement measures and/or, if justified, modify the applicable standard through a use attainability analysis or other process.

Ecology may direct Grant PUD to cease or modify any measure determined to impair the achievement of any TMDL Load Allocation for the Project for temperature or that does not contribute to achieving a Biological Objectives for the Project.

6.6 LOCALIZED PROJECT EFFECTS

Grant PUD shall monitor and study the following parameters, *in accordance with the plan development and procedures of Section 6.7.*

1) **DO, pH and Temperature**

- a) Long-Term Monitoring. Grant PUD shall continue to monitor pH and DO in the Project for the term of the New License. Monitoring shall be done on a periodic basis, as specified in the Ecology-approved Quality Assurance Project Plan (QAPP), per Section 6.7.
- b) Short-Term Monitoring. Within one year of license issuance, Grant PUD also shall develop and implement a short-term monitoring study for DO, pH and temperature in shallow water habitats, including macrophyte beds, in the reservoirs. Grant PUD shall monitor to determine if the values in the numeric criteria for DO, temperature and/or pH are met in these areas. If measurements reveal values to don't meet the numeric criteria, Grant PUD shall develop a plan, in consultation with the PRFF and PRCC, to determine the impact on aquatic habitat and associated biota and the Project's contribution. If monitoring shows that the Project causes negative impacts to aquatic life, Grant PUD shall, in consultation with the PRFF, identify any actions that are reasonable and feasible to protect aquatic life that may be adversely affected from such Project effects, and develop and implement an appropriate action plan, subject to review and approval by Ecology. Grant PUD shall implement such plan in a timely manner.

2) **Fish Ladder Temperature Studies**

Grant PUD shall address localized temperature conditions identified at the fish ladders by modifying the fish ladder water supply as described in the FLA Exhibit E-4 pp. 123-133 and Exhibit E-3. Upon issuance of the New License, Grant PUD shall, in consultation with Ecology, the PRCC and PRFF, begin to develop a plan to monitor temperatures above, below and within the fish ladders at the two dams. The plan shall be completed, and the monitoring begin, by spring of Year 2, with the results provided by December of that year. If the results show that the daily maximum or daily average temperatures in the ladder are higher than above or below the ladder, Grant PUD shall, again in consultation with Ecology, the PRCC and PRFF, develop a plan to address elevated temperatures. The plan shall be completed by December of the following year, and implemented in accordance with the Ecology-approved schedule.

3) **Fish Spawning, Rearing and Acclimation**

For any fish operation with potential impacts on water quality (e.g., facilities for spawning, rearing or acclimation, including net pens) owned by Grant PUD or whose operation and/or maintenance is funded in whole or part by the PUD,

and required as a part of the FERC license, the PUD shall obtain and remain in compliance with an up-to-date National Pollutant Discharge Elimination System (NPDES) permit or similar state waste discharge permit, as required by Ecology.

4) **Aquatic Invasive Species (AIS)**

Within one year following the effective date of the New License, in consultation with the PRFF, Grant PUD shall develop and begin implementation of an AIS Control and Prevention Plan (Prevention Plan) to monitor and manage invasive species within the Project boundary. The Prevention Plan shall be coordinated with the Ecology's Freshwater Aquatic Weed Control Program and the WDFW Aquatic Nuisance Species Program. The Plan shall focus on prevention by addressing the pathways for invasion of aquatic invasive flora and fauna. The Plan shall include, but not be limited to, the following components:

- a) Education. Identify boat access points and distribute educational materials for distribution during the peak boating season (May 1 - October 30 each year) to educate boaters, conduct voluntary boater surveys, direct voluntary boat inspection demonstrations, and document the findings. Actions shall include:
 - Expand distribution of educational materials and increase signage postings to increase boater awareness of dangers of spreading AIS, including the methods one can take to decrease the spread of AIS (e.g., clean the weeds off the boat and drain the live well before going to a new waterbody);
 - Explain to boaters at boat ramps the requirements of the AIS program and conduct voluntary boat inspection demonstrations for the purpose of identifying and removing aquatic invasive species from boats and trailers; and
 - Hand out prepared surveys to boaters, asking for their participation in filling out and submitting the surveys, and explaining the purpose and benefit of the survey;
- b) Implementation. Measures to prevent the movement of AIS into and out of Project boundary waters via recreational watercraft;
- c) Study. Descriptions of existing control, monitoring measures, and potential methods for mitigating impacts of AIS infestations;
- d) Prevention. Proposed additional prevention, control, and containment measures necessary to prevent infestations and minimize the impact of AIS;

- e) Monitoring. An implementation schedule and provisions for periodic monitoring to track progress toward meeting the goals of the plan.
- f) Rapid Response. An Early Detection and Rapid Response component to include the following elements:
 - Reporting the type, location, and extent of AIS infestations within the Project boundary.
 - Measures to identify new introductions and monitor the spread of existing AIS.
- g) Reporting. By March 1 of each year, Grant PUD shall submit an annual report to WDFW and Ecology to include: the number of boats inspected; the number of boats detected carrying non-native aquatic invasive flora or fauna; a description of new infestations of AIS; a description of existing infestations; a summary of progress made in reducing or eliminating infestations; recommendations for modifying the plan as needed, and information regarding boat travel to and from other water bodies.

5) **Stormwater**

Grant PUD shall comply with state stormwater requirements as they apply to the Project. Provisions shall be made for periodic monitoring of metals, machine oils and other toxic constituents in stormwater runoff at each dam.

6.7 **WATER QUALITY MONITORING**

1) **QAPPs**

Within one year after New License is issued, Grant PUD shall prepare a water quality monitoring and quality assurance project plan (QAPP) for each parameter to be monitored and submit the plans to the public for comment and to Ecology for review and written approval. The QAPPs shall follow the Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (July 2004 Ecology Publication Number 04-03-030) or its successor. The QAPPs shall contain, at a minimum, a list of parameter(s) to be monitored, a map of sampling locations, and descriptions of the purpose of the monitoring, sampling frequency, sampling procedures and equipment, analytical methods, quality control procedures, data handling and data assessment procedures, and reporting protocols.

2) **Updates**

Grant PUD shall review and update the QAPPs annually based on a yearly review of data and data quality. Ecology may also require future revisions to

the QAPP based on monitoring results, regulatory changes, changes in project operations and/or the requirements of TMDLs. Implementation of the monitoring program shall begin as soon as Ecology has provided the PUD with written approval of the QAPP. Changes to the QAPP need written approval by Ecology before taking effect. Ecology may unilaterally require implementation of the QAPP.

3) **Reporting Results**

Water quality monitoring results, along with a summary report, shall be submitted by March first of each year to the Department of Ecology, Eastern Region Office. Ecology will use the monitoring results to track the project's progress toward meeting and remaining in compliance with state water quality standards.

4) **Duration**

The monitoring required under this Certification shall continue throughout the life of the New License and any subsequent renewals of that license, unless modified by Ecology.

6.8 **CONSTRUCTION ACTIVITIES**

- 1) While the existing project is not a construction site, all development or mitigation projects proposed under relicensing must meet the following conditions. These conditions do not supersede separate conditions required for turbine replacement.
- 2) For future construction activities requiring a separate 401 certification (e.g., those requiring an individual 404 permit from the Army Corps of Engineers), Grant PUD shall comply with all conditions in that additional 401 certification.
- 3) All water quality criteria as specified in WAC 173-201A apply to any construction work needed to implement development or mitigation projects required under the new FERC license.
- 4) Unless otherwise stated in another Section 401 certification (see above), the turbidity criteria (WAC 173-201A) may be modified to allow a temporary mixing zone during and immediately after in-water or shoreline construction activities that disturb in-place sediments. A temporary turbidity mixing zone is subject to the constraints of WAC 173-201A, and is authorized only after the activity has received all other necessary local and state permits and approvals and after the implementation of appropriate best management practices (BMPs) to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criterion. The temporary turbidity mixing zone for

waters with flows greater than 100 cubic feet per second (cfs) at the time of construction is 300 feet downstream of the activity causing the turbidity exceedances.

- 5) For all other future construction activities, a water quality protection plan (WQPP) shall be prepared and implemented for each project involving work in or near water. The WQPP shall include:

a copy of the Hydraulic Project Approval (HPA) per Ch. 75.20 RCW from WDFW for the project;

a description of all Best Management Practices (BMPs) to be employed for in and near-water work.

a plan for sampling and monitoring during construction;

a plan for implementing mitigation measures should a water quality violation occur; and

a written procedure for reporting any water quality violations to Ecology.

Grant PUD shall submit each WQPP to Ecology for review and written approval prior to starting work.

6.9 SPILL PREVENTION AND CONTROL

- 1) Discharge of oil, fuel or chemicals into state waters or onto land where such contaminants could potentially drain into state waters is prohibited.
- 2) Grant PUD shall keep records of the amounts of oil used on site for any oil-using components at each development. These records shall be made available to Ecology upon request.
- 3) Grant PUD shall comply with its most recent approved version of the Spill Prevention Control and Counter Measure (SPCC) Plan for the project and shall continue to provide Ecology, Eastern Region Office, Spills and Water Quality Programs, with copies of its most up-to-date versions.
- 4) Grant PUD shall coordinate spill response planning and efforts with other hydroelectric facilities on the Columbia River such as through its participation with the Columbia-Snake River Spill Response Initiative (CSRSPI). Grant PUD shall train employees in the proper response techniques and the proper use and deployment of equipment.
- 5) Activities causing distressed or dying fish, fish kills, or any discharge of oil, fuel, or chemicals into state waters, or onto land where such contaminants could potentially drain into state waters, are prohibited.
- 6) In the event of a discharge of oil, fuel or chemicals into state waters, or onto land where such contaminants could potentially drain into state waters, containment and clean-up efforts shall *begin immediately* and be completed as

soon as possible, taking precedence over normal work. Clean-up shall include proper disposal of any spilled material and used clean-up materials.

- 7) Spills into state waters, spills onto land where contaminants could potentially drain into state waters, fish kills, and any other significant water quality problems, shall be ***reported immediately*** to the Department of Ecology Eastern Regional Office at (509) 329-3400 or to 1-800-258-5990. Notification shall include a description of the nature and extent of the problem, any actions taken to correct the problem, plus any proposed changes in operations to prevent further problems.

APPENDIX C to the Water Quality Certification

**BIOLOGICAL OBJECTIVES
and
IMPLEMENTATION MEASURES**

for

Bull Trout

White Sturgeon

Pacific Lamprey

and

Native Resident Fish

BULL TROUT

DESIGNATED USE: Aquatic Life

BIOLOGICAL OBJECTIVES

- 1) Rearing and migration: No negative effects caused by the Project or Project operations.

- 2) Rearing and migration: Identify and mitigate any unavoidable Project effects on bull trout rearing or migration.

IMPLEMENTATION MEASURES

Grant PUD shall, in consultation with the PRFF, develop and implement a Bull Trout Monitoring and Evaluation Plan (BTMEP) within one year of issuance of the New License. The intent of BTMEP is to monitor and record bull trout observations at the Project. The BTMEP shall include an Adaptive Management element to address changing conditions (such as increasing numbers of bull trout observations at the Project or observed bull trout mortalities or injuries), assess on-going adverse effects, and investigate potential corrective actions, with the goal of achieving the bull trout Biological Objectives.

The following tasks are consistent with achieving the Biological Objectives and shall be incorporated into the BTMEP:

- Task 1: Continue operating the Project's adult upstream fishways and downstream juvenile bypasses.
- Task 2: Identify any adverse Project effects on adult and sub-adult bull trout passage through monitoring and evaluation.
- Task 3: Identify and implement appropriate measures to modify the upstream adult fishway, downstream juvenile bypass, or Project operations if adverse impacts on bull trout are identified.

The BTMP shall include but not be limited to the following Implementation Measures:

- 1) **Reporting.** By March 31 following issuance of the New License, and each year thereafter for the term of the New License, provide an annual report documenting bull trout observations within the past year and summarizing previous years' bull trout observations at the Project.

- 2) **Monitoring.** Record bull trout observations during the following activities: fish counting at fishways, including the counting and reporting of all bull trout life stages moving through Wanapum and Priest Rapids dams between April 15 and

November 15 of each year for an experimental period of five years; juvenile bypass activities; gatewell dipping; turbine maintenance activities; fishway maintenance activities; hatchery activities; northern pikeminnow control program activities; and other related activities. If monitoring identifies potential Project effects, in consultation with the PRFF and the USFWS, appropriate actions shall be identified and implemented to modify upstream and downstream passage facilities or Project operations to mitigate the identified Project effects. The Monitoring Plan shall be updated, in consultation with the PRFF, every five years following issuance of the New License. The updated five-year plan should describe any apparent trends in bull trout abundance or frequency of occurrences in the project area and shall address technological or methodological advances that may allow evaluation of project effects on bull trout.

- 3) **Pit Tagging and Sampling.** Subject to USFWS approval, genetic samples shall be taken of all bull trout over 70 mm handled as part of ordinary Project operations, for use in genetic analysis. Subadults shall be pit tagged when incidentally captured during on-going fish management and project operation activities during scheduled pit tagging operations. Detections shall be noted in the annual report.

- 4) **Adaptive Management.** The BTMEP shall include procedures to expand the scope of the BTMEP to include the development of measures to identify and mitigate Project effects on bull trout, should changing conditions at the Project such as increasing numbers of bull trout observations or observed bull trout mortalities or injuries occur or should technological or methodological advances occur that may allow evaluation of project effects on bull trout.

WHITE STURGEON

DESIGNATED USE: Aquatic Life and Harvest

BIOLOGICAL OBJECTIVES

- 1) Spawning and rearing in Project area¹⁹⁰: Natural reproduction potential reached via natural recruitment.
- 2) Spawning, rearing, and harvest in Project reservoirs: Increase the white sturgeon population in Project reservoirs to a level commensurate with available habitat.
- 3) Adult and juvenile upstream and downstream migration: Provide safe, effective, and timely volitional passage, if reasonable and feasible passage means are developed.
- 4) Until reasonable and feasible means for reestablishing natural production and providing support for migration are available, and recognizing that those means appear unlikely in the foreseeable future, the Biological Objective is sustaining a population at a level commensurate with available habitat through implementation of a white sturgeon supplementation program in the Project reservoirs. The supplementation program will provide an initial foundation for the Monitoring and Evaluation Program, which is designed to a) identify existing impediments to achieving the Biological Objectives, b) sustain the populations until the existing impediments can be corrected, and c) mitigate for population losses due to Project impacts. Timelines proposed for implementation of supplementation program implementation measures are reflected in the table below.

IMPLEMENTATION MEASURES

Grant PUD shall, in consultation with and upon approval of the PRFF, develop and implement a White Sturgeon Management Plan (WSMP) within one year of issuance of the New License. The intent of WSMP is to: (1) identify and address Priest Rapids project effects to white sturgeon; and (2) develop and implement “Implementation Measures” designed to avoid and mitigate for Project effects to white sturgeon. Adaptive Management shall be applied to resolve critical uncertainties.

¹⁹⁰Within the geographic scope of the Environmental Analysis as defined by FERC in the FEIS for the Project (Section 3.2.1).

The following Tasks are consistent with achieving the Biological Objectives and shall be incorporated into the WSMP:

- Task 1. Determine the effectiveness of the supplementation program in creating a sustainable white sturgeon population in the Project reservoirs based on natural production potential and adjust the supplementation program accordingly.
- Task 2. Determine the carrying capacity of available white sturgeon habitat in each reservoir.
- Task 3. Participate and cooperate in the development of any regional white sturgeon management effort initiated for the purpose of addressing flow fluctuation effects on the Hanford Reach white sturgeon population as a result of Project operations. If questions arise as to the appropriate level of participation and cooperation, Grant PUD shall request clarification from Ecology.
- Task 4. Determine juvenile downstream passage survival.

The WSMP shall include but not be limited to the following Implementation Measures:

1) **Reporting**

By March 31 following issuance of the New License, and each year thereafter for the term of the New License, provide an annual report summarizing activities undertaken to identify and address impacts of the Project to white sturgeon, including results of those activities. This report shall include a compilation of information on other white sturgeon supplementation programs in the Columbia River Basin in order to assess whether the supplementation program being implemented at the Priest Rapids Project is: (i) consistent with other supplementation programs in the region; (ii) cost effective to implement at the Project; and (iii) whether improvements can be made which are appropriate to implement at the Project.

2) **Supplementation Program**

a) **Broodstock Collection and Breeding Plan**

- Following is a prioritized list of broodstock source options that shall be incorporated into a Broodstock Collection and Breeding Plan.
 - Collect brood stock from Project reservoirs.
 - Collect brood stock from nearby reservoirs (Wanapum, Priest Rapids, Rocky Reach, Rock Island, Wells, McNary).

- Use excess juveniles from the Lake Roosevelt white sturgeon recovery effort.
- Collect brood stock from the lower Columbia River.
- Purchase juveniles from a commercial facility.
- Trap and haul adult or juvenile sturgeon from the lower Columbia River.
- A white sturgeon supplementation program may include, but may not be limited to, the following implementation options.
 - Build new or retrofit existing hatchery facilities to accommodate brood stock, egg incubation and juvenile rearing.
 - Direct release into Project reservoirs juveniles reared at a commercial facility.
 - Direct release into Project reservoirs juveniles or adults trapped and hauled from the lower Columbia River.

3) **Juvenile White Sturgeon Stocking**

- a) Stock 6,500 yearlings annually in Wanapum Reservoir in Years 3, 4 and 5 to increase the reservoir white sturgeon population.
- b) Stock 3,500 yearlings annually in Priest Rapids Reservoir in Years 3, 4 and 5 to increase the reservoir white sturgeon population.
- c) Stock a total of 10,000 yearlings annually in the Wanapum and Priest Rapids reservoirs from Year 6 through the end of the term of the New License or as adjusted by Grant PUD, in consultation with the PRFF, through the Adaptive Management process consistent with monitoring and evaluation results.

4) **Supplementation Program Monitoring and Evaluation**

A Monitoring and Evaluation Plan shall include both a sampling program and an emigration rate assessment to determine: supplementation program effectiveness, carrying capacity for each reservoir, and reproduction potential for each reservoir.

- a. Sampling Program. Using active-tagged sturgeon, develop and implement a sampling program for the evaluation of survival rates, growth rates, fish distribution, habitat selection, habitat use, habitat availability, and habitat suitability. The program shall include the following:

- Monitor to determine program effectiveness in Years 4, 5, 6, 8, and then every 3rd year for the term of the New License.
 - Monitor to determine each reservoir's carrying capacity in Year 3 through the end of the term of the New License.
 - Monitor to determine each reservoir's reproduction potential in Years 8, 9, 10, 13, and 18, and then every 3rd year for the term of the New License.
- b. Emigration Rate Assessment. In Years 4, 5, 6, 14, and 20, active-tagged sturgeon shall be used to assess the emigration rate of white sturgeon out of the Priest Rapids Project.

5) **Adult and Juvenile Upstream and Downstream Passage**

- a) In a timely manner, but no later than ten years following issuance of New License, determine juvenile white sturgeon emigration rates for the Project.

6) **Adaptive Management**

- a) The WSMP shall include provisions to resolve critical uncertainties to further achievement of white sturgeon Biological Objectives. In the event that adverse Project effects on white sturgeon spawning, incubation and rearing in the Hanford Reach are identified, the WSMP shall be amended to further investigate and quantify Project effects and to identify potential reasonable and feasible measures to mitigate such effects, taking into consideration the cumulative effects of the river system and using the adaptive management process. Draft plans for the investigation and evaluation shall be developed in consultation with PRFF, and proposed final plans submitted to Ecology for approval or modification.
- b) In the event that reasonable and feasible means for reestablishing natural production and providing support for migration become available, these measures shall be considered by the PRFF and the WSMP amended as appropriate for implementation.
- c) Grant PUD shall consult with the PRFF during the term of the New License to ensure that the juvenile white sturgeon stocking program, indexing program and associated use of active tags (with limited lives) are coordinated to most effectively meet the overall monitoring goals and schedule. Table C-1 demonstrates an estimated long-term schedule, subject to Adaptive Management by Grant PUD, in consultation with the PRFF, to coordinate release, survey, tagging, and monitoring activities. The table demonstrates an estimated long-term schedule, subject to Adaptive Management by Grant PUD,

in consultation with the PRFF, to coordinate release, survey, tagging, and monitoring activities.

White Sturgeon Supplementation Program

New License Year	Collect Brood Stock ¹⁹¹	Release Fish in Reservoirs ¹⁹²	Indexing ¹⁹³	Track Marked Fish ¹⁹⁴	Assess Natural Production ¹⁹⁵
1					
2	X				
3	X	X			
4	X	X	X		
5	X	X	X	X	
6	X	TBD ¹⁹²	X	X	
7	X	“		X	
8	TBD ¹⁹²	“	X		TBD
9	“	“			“
10	“	“			“
11	“	“	X		
12	“	“			
13	“	“			“
14	“	“	X	X	
15	“	“			
16	“	“			
17	“	“	X		
18	“	“			“
19	“	“			
20	“	“	X	X	
21	“	“			
22	“	“			
23	“	“	X		

¹⁹¹ Collection of brood stock may include capture of mature adults from Project reservoirs, the mid-Columbia River reservoirs (including McNary) or Hanford Reach, the Snake, the lower Columbia River, or the Snake River where appropriate and reasonable. The initial source of brood stock will be determined in year one of the program and collection will begin in Year two.

¹⁹² A total of 10,000 yearlings will be released in the reservoirs during each of the first three years. Total yearlings released in subsequent years will range from 0 - 10,000, based on the results of the indexing program. Hatchery fish will be acquired through purchase from a commercial hatchery, production from a hatchery or cooperative mid-Columbia hatchery, or other measures. Breeding plans for all options will be developed, in consultation with the PRFF.

¹⁹³ Indexing will include monitoring of age, growth, habitat, survival, and condition factors of juvenile and adult sturgeon. Results will be used to determine future stocking rates, locations and timing. The frequency of indexing may be adjusted in consultation with the PRFF.

¹⁹⁴ Active-tagged juvenile and adult sturgeon will be tracked to assess emigration, habitat use, and potential spawning locations.

¹⁹⁵ Conduct spawning surveys, as recommended by the PRFF to identify natural production in the reservoirs. The PRFF may adjust surveys based on flow conditions or other data.

24	“	“			
25	“	“			
Repeat Years 23 to 25 through end of license					

PACIFIC LAMPREY

DESIGNATED USE: Aquatic Life and Harvest

BIOLOGICAL OBJECTIVES

- 1) Overall Combined Goal: No Net Impact (NNI). Identify, address, and fully mitigate Project effects to the extent reasonable and feasible.
- 2) Adult Upstream and Downstream Migration: Provide safe, effective, and timely volitional passage (as defined by the PRFF).
- 3) Juvenile Downstream Migration: Provide safe, effective, and timely volitional passage (as defined by the PRFF).
- 4) Rearing: Avoid and mitigate Project impacts on rearing habitat.

IMPLEMENTATION MEASURES

Grant PUD shall, in consultation with the PRFF, develop, fund, and implement a Pacific Lamprey Management Plan (PLMP) within one year of issuance of the New License. The intent of PLMP is to: (1) identify and address Priest Rapids Project effects on Pacific lamprey; and, (2) develop and implement measures to mitigate for Project effects to lamprey, including consideration of structural modifications and operational changes found to be effective at improving Pacific lamprey survival and passage at other Columbia River projects, as applicable. Adaptive Management shall be applied to resolve critical uncertainties with the goal of achieving Pacific Lamprey Biological Objectives.

The following Tasks are consistent with achieving the Biological Objectives and shall be incorporated into the PLMP.

Task 1: Identify and address Project effects on upstream and downstream passage of adult Pacific lamprey.

Task 2: Identify and address Project effects on downstream passage of juvenile Pacific lamprey.

Task 3: Identify and address Project effects on the reservoir habitat as used by juvenile Pacific lamprey.

Task 4: Identify and implement measures to mitigate Project effects on Pacific Lamprey at the Priest Rapids Project.

The PLMP shall include but not be limited to the following Implementation Measures:

1) Reporting

By March 31 following issuance of the New License, and each year thereafter for the term of the New License, provide an annual report summarizing activities undertaken to identify and address impacts of the Priest Rapids Project on Pacific lamprey, including results of those activities. This report shall include a compilation of information on other Pacific lamprey passage and survival investigations and measures being undertaken in the Columbia River Basin in order to determine if adult and juvenile measures being investigated and/or implemented at the Priest Rapids Project are: (i) consistent with similar measures taken at other projects; (ii) appropriate to implement at the Priest Rapids Project; and (iii) cost effective to implement at the Priest Rapids Project.

2) Adult Upstream and Downstream Passage

- a) Maintain adult fishways to support adult Pacific lamprey passage. These fishways shall be maintained in a manner not inconsistent with anadromous fish passage criteria described in the annual Fishway Operations Plan and those criteria specified in the Anadromous Salmonid Passage Facility Guidelines and Criteria Plan (NOAA Fisheries) including future updates.
- b) Develop adult lamprey passage criteria that are not inconsistent with the anadromous fish passage criteria. Criteria will include consideration of success achieved at other Columbia River Basin projects and of Priest Rapids Project-specific conditions.
- c) Continue to operate and maintain fish count systems at the Priest Rapids Project to include counting adult Pacific lamprey (not inconsistent with methodologies used to enumerate salmonids and other fishes) migrating through the right and left bank fishways at both Priest Rapids and Wanapum dams. These count systems shall be upgraded as fish count systems technology becomes available, and is reasonable and feasible to implement at the Project.
- d) Within one year of issuance of a New License, develop, in consultation with the PRFF, and implement a comprehensive evaluation of adult lamprey passage of the Priest Rapids Project. A comprehensive evaluation shall ensure that any gaps in knowledge regarding Project effects on adult lamprey passage, not captured in adult lamprey passage evaluation completed by Grant PUD as part of its FLA proposal, shall be evaluated. Development of the adult lamprey passage evaluation shall include but not be limited to an inspection of the Project passage facilities by PRFF members. Within four years of license issuance Grant PUD should have a determination as to whether the FLA-

- proposed modifications significantly improve adult passage. If not, then Grant PUD shall develop and implement additional measures in consultation with the PRFF.
- e) Within two years of issuance of a New License and after consultation with PRFF, implement improvements to the junction pool and the diffusion gratings as identified in the FLA for Priest Rapids dam
 - f) Within one year of completion of fishway modifications at Priest Rapids dam (diffusion gratings and junction pool, if implemented), implement an evaluation program, such as through the use of radio telemetry (or other appropriate technologies) to evaluate the effectiveness of fishway modifications on lamprey.
 - g) Within seven years of issuance of a New License, implement all modifications identified for the adult fishways Project-wide to improve lamprey passage as identified per the FLA or as amended by the PRFF.
 - h) Following implementation of identified fishway modifications, Project-wide, and all evaluation of these fishway improvements, begin investigation of the efficacy and advisability of reducing fishway flows at night during peak lamprey migration periods in an attempt to improve adult lamprey passage efficiency and reduce passage times, or as recommended by the PRFF.
 - i) Following attainment of the Pacific Lamprey Biological Objectives, every 10th year during the term of the New License, or as recommended by the PRFF, conduct a monitoring and evaluation study of adult Pacific lamprey passage at the Project consistent with monitoring and evaluation required under Section 5(f) under Certification Conditions, using radio telemetry (or other appropriate technologies). However, if Ecology concludes following issuance of the Year Ten status report that a Pacific Lamprey Biological Objective has not been met (Section 5.3 [5.e] under Certification Conditions), Grant PUD shall continue to implement the Adaptive Management process as described in Section 5.3 (2) under Certification Conditions.
 - j) Participate in regional studies and cooperate with other entities performing those studies when useful information may be obtained about project impacts to lamprey. For instance, when fish tagged under another study or studies enter the project boundary, participate in the study by monitoring and reporting on movement of tagged individuals within and through the project area.

3) Juvenile Downstream Passage and Reservoir Rearing

- a) In a timely manner, but no later than 10 years following license issuance, identify and mitigate Project effects on juvenile Pacific Lamprey with the intention of meeting juvenile lamprey passage criteria referred to in c) below.
- b) In a timely manner, but no later than 10 years following license issuance, determine juvenile Pacific lamprey presence/absence, habitat use, and relative abundance within the Priest Rapids Project.
- c) Develop juvenile lamprey passage criteria. Criteria will include consideration of a) success achieved at other Columbia River Basin projects and b) Project-specific conditions.
- d) Participate in regional studies and cooperate with other entities performing those studies when useful information may be obtained about Project impacts to lamprey. For instance, when fish tagged under another study or studies enter the Project boundary, participate in the study by monitoring and reporting on movement of tagged individuals within and through the Project area.

NATIVE RESIDENT FISH

DESIGNATED USE: Aquatic Life and Harvest.

BIOLOGICAL OBJECTIVES

- 1) Overall: Maintain native resident fish species diversity.
- 2) Harvest: Maintain harvest opportunities.

IMPLEMENTATION MEASURES

Grant PUD shall provide funds to track native resident fish species diversity and provide mitigation for impacts to and loss of resident fish and harvest opportunities by compliance with Parts A and B as set forth below. Mitigation is for reduced recreational fishing opportunities occurring on native resident fish species within the Project boundary. As described under Parts A and B below, Grant PUD shall provide funding for: (1) a goal of 137,000 pounds of trout to provide recreational fishing opportunities in area waters; and (2) monitoring native resident fish species within the Priest Rapids Project Area for the purpose of depicting trends in species abundance, distribution, and species presence-absence for those native fish species not specifically covered in focused management plans described elsewhere in this Certification.

PART A: Hatchery Infrastructure

Grant PUD shall provide Part A Funds (not to exceed \$1,500,000) to renovate the existing Columbia Basin Hatchery facility to ensure stable operations at current capacity for the term of license. Current capacity is 60,000-70,000 pounds of trout annually, which shall be credited to Grant PUD as mitigation for reduced recreational fishing opportunities occurring on native resident fish species.

Part A funds shall be applied to:

- Renovate existing water delivery system
- Renovate existing raceways
- Renovate hatchery building
- Renovate outbuildings, grounds, stand-by residences
- Purchase of tanker truck.

PART B: Resident Fish Monitoring and Trout Purchase

Grant PUD shall establish and administer a Part B Fund for resident fish monitoring and fish purchase in accordance with applicable provisions of Washington State law. Interest earned on the funds in the Fund shall remain in the Fund. No funds from the Fund shall

be used to pay the routine expenses of the members of the PRFF, associated with their participation on the PRFF. Payments shall be calculated based upon 2003 dollars, annually adjusted per U.S. Dept of Labor, Bureau of Labor Statistics Consumer Price Index for the Western Region. Should this index become unavailable, then Grant PUD and WDFW shall identify a comparable index for use by the WDFW and approved by Ecology.

Grant PUD shall make contributions to the Fund annually on or before February 15th of each year in the amount of \$100,000 per year. Grant PUD shall manage the Fund according to generally accepted accounting standards.

Funds shall be used to purchase, produce, transport or otherwise obtain trout to meet the difference between trout production at Columbia Basin Hatchery (60-70,000 pounds) and the 137,000 pounds production goal. Trout purchased with the funds shall be stocked inside the Priest Rapids Project Area (Burkett Lake), as well as into area lakes within Grant County.

Funds from this account shall also be directed towards the monitoring of native resident fish species within the Priest Rapids Project Area. Specifically, these funds shall be used to conduct surveys and inventories of resident fish species within the Priest and Wanapum reservoirs at a frequency of not less than every five years. Data from these surveys shall be used to depict trends in species abundance, distribution, and species presence-absence for those native fish species not specifically covered in focused management plans described elsewhere in the Certification. The goal of the monitoring effort is to detect the presence or absence of large-scale changes in population attributes of the aforementioned native resident species not otherwise covered in species specific management plans. It is expected that funds spent on monitoring shall not be less than that needed to depict trends in species abundance, distribution and absence-presence, as determined on a technical basis by WDFW and approved by Ecology.

In summary, funds shall be applied to:

- Annual purchase or production of trout in the amount necessary to meet the production goal of 137,000 pounds of total annual trout plants. The number of pounds purchased with Part B may vary from year to year as the difference between Columbia Basin Hatchery annual production (60,000 - 70,000 pounds) and the total annual goal of 137,000 pounds fluctuates
- Transportation costs associated with planting additional trout in Grant County
- Grant County lake rehabilitations necessary to ensure that trout plants provide high quality fishing opportunities
- Monitoring native resident fish species not otherwise addressed in species-specific management plans contained in the certification or New License

- Generating reports associated with monitoring efforts.

APPENDIX B

**U.S. Department of the Interior, Fish and Wildlife Service
Fishway Prescriptions Pursuant to Section 18 of the FPA for Salmon and Steelhead
filed May 26, 2005, modified February 20, 2007, clarified March 21, 2008**

and

**U.S. Department of Commerce, National Marine Fisheries Service
Fishway Prescriptions Pursuant to Section 18 of the FPA
filed May 27, 2005, modified June 22, 2006, and clarified March 21, 2008¹⁹⁶**

1.3 Terms and Rationale for Modified Section 18 Fishway Prescriptions

Pursuant to Section 18 of the FPA, the Secretary of the Interior hereby prescribes the construction, operation, and maintenance of fishways at the Priest Rapids Hydroelectric Project, Project No. 2114-060, as set forth below and in Appendix 1. These modified prescriptions for fishways rely, in part, on the information in the Priest Rapids Salmon and Steelhead Settlement Agreement and its supporting documentation as substantial evidence in support of our modified fishway prescriptions. The prescriptions presume that the Agreement is accepted in its entirety and without material modification. If the Agreement noticed by the Commission on February 17, 2006, is not accepted in its entirety or is materially modified by the Commission or a court order, then the Department reserves the right to modify these modified prescriptions for fishways, if warranted.

Article 1: Prescription for Fall Chinook Program**1.1 Fall Chinook Protection Program**

The Licensee shall develop and implement a comprehensive Fall Chinook Protection Program for the fall Chinook populations in the mid-Columbia region affected by the Project. The Fall Chinook Protection Program shall include an adaptive management based passage program for the Project as described in Articles 7-28 below. In addition, the Settlement Agreement includes as integral parts of the comprehensive

¹⁹⁶The section 18 fishway prescriptions filed by FWS and NMFS were nearly identical. For ease of compliance, Commission staff combined the two documents. Where different language was used, staff inserted both versions with attribution.

Fall Chinook Protection Program: the Hanford Reach Fall Chinook Protection Program Agreement as filed separately by Grant PUD with the Commission; 2% compensation provided through the habitat program as described in Part XIV of the Settlement Agreement; and a Fall Chinook Artificial Propagation Program as described in §§9.5 and 9.6 of the Settlement Agreement. This Fall Chinook Protection Program is designed to achieve No Net Impact (NNI) from the operations of the Project on fall Chinook populations in the program area, defined as the Hanford Reach and upstream to the tailrace immediately below Rock Island Dam. NNI shall apply collectively to all fall Chinook including those that originate above and within the program area as a whole. The contributions to NNI from Project operations and other actions will include protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

1.2 Periodic Review and Adjustment.

The Licensee, in consultation with the Priest Rapids Coordinating Committee (PRCC), as defined in Part V of the Settlement Agreement, shall from time-to-time review the performance of the Fall Chinook Protection Program and determine its continued ability to achieve its performance standards. In the event that the Parties determine that adjustments are required to better achieve the performance standards for fall Chinook, the Licensee shall consult with NOAA Fisheries Service, the U.S. Fish and Wildlife Service, and the PRCC, in accordance with the Settlement Agreement, regarding any further determinations to either continue seeking alternative passage solutions, or to adjust the mix of habitat or artificial propagation production approaches and levels.

Article 2: Prescription for Summer Chinook Program

2.1 Summer Chinook Protection Program

The Licensee shall develop and implement a comprehensive Summer Chinook Protection Program for the summer Chinook populations in the mid-Columbia region affected by the Project. The Summer Chinook Protection Program shall include the following performance standards: Passage Survival Performance Standards as described in Article 6 below and an adaptive management based passage program for the Project as described in Articles 7-28 below. In addition, the Settlement Agreement includes as performance standards for the comprehensive Summer Chinook Protection Program: 2% compensation provided through the habitat program as described in Part XIV of the Settlement Agreement; and a Summer Chinook Artificial Propagation Program as described in Parts 10.4 of the Settlement Agreement, and a variable No Net Impact Fund as described in Part XV of the Settlement Agreement. This Summer Chinook Protection Program is designed to achieve No Net Impact (NNI) from the operations of the Project on summer Chinook populations that pass through the Project area. NNI shall apply collectively to all summer Chinook including those that originate above and within the

program area as a whole. The contributions to NNI from Project operations and other actions will include protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

2.2 Periodic Review and Adjustment

The Licensee, in consultation with the PRCC, as defined in Part V of the Settlement Agreement, shall from time-to-time review the performance of the Summer Chinook Protection Program and determine its continued ability to achieve its performance standards. In the event that the Parties determine that adjustments are required to better achieve the performance standards for summer Chinook, the Licensee shall consult with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, in accordance with the Settlement Agreement, regarding any further determinations to either continue seeking alternative passage solutions, or to adjust the mix of habitat or artificial propagation production approaches and levels.

Article 3: Prescription for Spring Chinook Salmon Program

3.1 Spring Chinook Protection Program

The Licensee shall develop and implement a comprehensive Spring Chinook Protection Program for the spring Chinook populations in the mid-Columbia region affected by the Project. The Spring Chinook Protection Program shall include the following performance standards: Passage Survival Performance Standards as described in Article 6 below and an adaptive management based passage program for the Project as described in Articles 7-28 below. In addition, the Settlement Agreement includes as performance standards for the comprehensive Spring Chinook Protection Program: 2% compensation provided through the habitat program as described in Part XVI of the Settlement Agreement; and a spring Chinook Artificial Propagation Program as described in Parts 28-31 of Appendix A of the Settlement agreement, and a variable No Net Impact fund as described in Part XV of the Settlement Agreement. This spring Chinook Protection Program is designed to achieve No Net Impact (NNI) from the operations of the Project on spring Chinook populations that pass through the Project area. NNI shall apply collectively to all spring Chinook including those that originate above and within the program area as a whole. The contributions to NNI from Project operations and other actions will include protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

3.2 Periodic Review and Adjustment

The Licensee, in consultation with the PRCC, as defined in Part V of the Settlement Agreement, shall from time-to-time review the performance of the Spring Chinook Protection Program and determine its continued ability to achieve its performance

standards. In the event that the Parties determine that adjustments are required to better achieve the survival performance standards for spring Chinook, the Licensee will consult with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, in accordance with the Settlement Agreement, regarding any further determinations to seek alternative passage solutions.

Article 4: Prescription for Steelhead Program

4.1 Steelhead Protection Program

The Licensee shall develop and implement a comprehensive Steelhead Protection Program for the steelhead populations in the mid-Columbia region affected by the Project. The Steelhead Protection Program shall include the following performance standards: Passage Survival Performance Standards as described in Article 6 below and an adaptive management based passage program for the Project as described in Articles 7-28 below. In addition, the Settlement Agreement includes as performance standards for the comprehensive Steelhead Protection Program: 2% compensation provided through the habitat program as described in Part XIV of the Settlement Agreement; and a Steelhead Artificial Propagation Program as described in Part 27 of Appendix A of the Settlement Agreement, and a variable No Net Impact Fund as described in Part XV of the Settlement Agreement. This Steelhead Protection Program is designed to achieve No Net Impact (NNI) from the operations of the Project on steelhead populations that pass through the Project area. NNI shall apply collectively to all steelhead including those that originate above and within the program area as a whole. The contributions to NNI from Project operations and other actions will include protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

4.2 Periodic Review and Adjustment

The Licensee, in consultation with the PRCC, as defined in Part V of the Settlement Agreement, shall from time-to-time review the performance of the Steelhead Protection Program and determine its continued ability to achieve its performance standards. In the event that the Parties determine that adjustments are required to better achieve the survival performance standards for spring Chinook, the Licensee will consult with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, in accordance with the Settlement Agreement, regarding any further determinations to seek alternative passage solutions.

Article 5: Prescription for Sockeye Salmon Program

5.1 Sockeye Salmon Protection Program

The Licensee shall develop and implement a comprehensive Sockeye Salmon Protection Program for the sockeye populations in the mid-Columbia region affected by the Project. The Sockeye Protection Program shall include the following performance standards: Passage Survival Performance Standards as described in Article 6 below and an adaptive management based passage program for the Project as described in Articles 7-28 below. In addition, the Settlement Agreement includes as performance standards for the comprehensive Sockeye Salmon Protection Program: 2% compensation provided through the habitat program as described in Part XIV of the Settlement Agreement; and a Sockeye Salmon Artificial Propagation Program as described in Parts 11.4 of the Settlement Agreement, and a variable No Net Impact Fund as described in Part XV of the Settlement Agreement. This Sockeye Salmon Protection Program is designed to achieve No Net Impact (NNI) from the operations of the Project on sockeye populations that pass through the Project area. NNI shall apply collectively to all sockeye including those that originate above and within the program area as a whole. The contributions to NNI from Project operations and other actions will include protection across all life history phases including migrations, spawning, and rearing that occur within the program area.

5.2 Periodic Review and Adjustment

The Licensee, in consultation with the PRCC, as defined in Part V of the Settlement Agreement, shall from time-to-time review the performance of the Sockeye Salmon Protection Program and determine its continued ability to achieve its performance standards. In the event that the Parties determine that it is not feasible to achieve these performance standards for sockeye, the Licensee will consult with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, in accordance with the Settlement Agreement, regarding any further determinations to either continue seeking alternative passage solutions, or to adjust the mix of habitat and NNI fund contributions, or increase artificial propagation levels.

Article 6: Prescription for Priest Rapids Project Passage Survival Performance Standards

The Licensee shall make steady progress towards achieving a minimum 91% combined adult and juvenile salmonid survival performance standard at the Priest Rapids and Wanapum Developments (i.e., each dam), and shall have passage measures in place, as specified in Articles 7 through 28 below, that are expected to achieve this performance standard by 2010. The 91% standard includes a 93% project-level (reservoir and dam) juvenile survival performance standard. NOAA Fisheries Service and the U.S. Fish and Wildlife Service recognized that as of the Settlement Agreement Effective Date it was not currently possible to measure the 91% combined adult and juvenile survival standard. To address this issue, the Licensee shall use dam and reservoir smolt survival studies to evaluate progress towards meeting 95% juvenile dam passage survival and 93% juvenile project passage survival. No later than license issuance, the Licensee shall develop and

begin implementing, with steady progress, a plan to achieve the 93% juvenile project passage survival standard by 2010, and shall have measured survival for Plan Species, as specified in the Settlement Agreement by year 2013. The performance standard can also be accomplished as a composite: the Licensee can compensate for a failure to achieve the performance standard at one of its developments by exceeding the performance standard at the other development (i.e. at a minimum, by the same percentage amount below the survival performance standard at the development failing to meet performance standards). If at-project survival exceeds the minimum combined adult juvenile and adult performance standard specified above, as measured per the specifications listed below, the Licensee, in consultation with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service, may reduce off-site mitigation obligations by a commensurate amount.

Article 7: Priest Rapids Project Passage

The Licensee shall, in consultation with the PRCC, develop fish passage programs and operational measures comprised of Articles 8-23 below, designed to achieve the passage survival standards for spring, summer and fall Chinook salmon, sockeye salmon and steelhead as identified above in Article 6. The passage program shall be consistent with the schedules shown in the Settlement Agreement in Table 2 of Section XV, and in Figures 1 and 2 following Section XV. The passage program shall be implemented according to Adaptive Management, as specified in Article 27 below. This passage program shall be developed as a part of and in conjunction with the Downstream Passage Alternatives Action Plan defined in Article 8 below, and in the Settlement Agreement. As a starting point for this planning work, the Licensee, in consultation with the PRCC, shall utilize the Fish Passage Alternatives Study (Voskuilen et al. 2003). These reports and analyses shall also be utilized, where otherwise applicable, as the basis for continued downstream passage planning for listed species as required by Appendix A of the Settlement Agreement and for the other non-listed species as required in the Settlement Agreement. The initial plan is shown in the Settlement Agreement in Figure 1 -- Wanapum Development Passage Measures Plan Forward, and Figure 2 -- Priest Rapids Development Passage Measures Plan Forward. The Licensee shall submit these Plans to be reviewed and updated annually by the PRCC.

Article 8: Prescription for Wanapum Dam Downstream Passage Alternatives Action Plan

The Licensee shall, in coordination with the PRCC, annually revise a Downstream Passage Alternatives Action Plan (DPAAP) designed to contribute to the achievement of applicable performance standards for the Project over time. The DPAAP shall be subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service and shall consist of the implementation and testing of capital measures designed to improve juvenile survivals at the Wanapum development, as well as the implementation and

testing of alternative operational measures outlined in the actions that follow. The objective of these capital or operational modifications shall be to improve juvenile passage survivals while remaining within Total Dissolved Gas (TDG) limits. At the conclusion of the implementation and testing, the Licensee, in coordination with the PRCC, NOAA Fisheries Service, and the U.S. Fish and Wildlife Service approval, shall update its DPAAP to identify the combination of measures that results in the greatest survival. Additionally, the plan shall identify other prospective high priority research and development to further improve survivals, where necessary.

Article 9: Prescription for Top Spill through Future Units at Wanapum Dam

The Licensee shall timely complete the construction of the Wanapum Dam future unit top spill facility for operations starting with the 2008 juvenile downstream migration season. The design of the future unit top spill will provide at least an approximate 20,000 cubic feet per second (cfs) discharge from the forebay for the purpose of juvenile fish bypass. The Licensee shall begin biological testing during the 2008 outmigration and conduct testing in coordination with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, followed by additional testing as determined by NOAA Fisheries Service or the U.S. Fish and Wildlife Service and the PRCC.

The design of the future unit top spill will provide at least an approximate 20,000 cubic feet per second (cfs) discharge from the forebay for the purpose of juvenile fish bypass. The installation of the future unit top spill will include a transition chute that will allow bypass flow to be introduced into the tailrace in the optimal configuration (as determined by hydraulic model testing) to provide improved juvenile fish egress from the tailrace and to minimize TDG uptake or de-gas bypass flow. Biological testing will include evaluation of forebay migration through the use of acoustic tags and survival tests utilizing PIT tags, acoustic tags, or other methods. Additional passage measures (e.g., modifications to the future unit bypass structure per Figure 1 in the Settlement Agreement) may be required if biological testing shows that performance standards (as described in Article 4) are not being met. The Licensee shall develop biological study plans in coordination with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service. The Licensee may seek schedule modifications through consultation with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service.

Article 10: Prescription for Advanced Turbines at Wanapum Dam

As a second component of its DPAAP described above, the Licensee shall ensure that all actions required by Action 4 of Appendix A of the Settlement Agreement (FWS)/the 2004 Biological Opinion (NOAA FS) are undertaken in a timely and effective manner. The Licensees shall conduct biological testing of the Wanapum powerhouse in accordance with Table 1 of the Settlement Agreement to determine if the new turbines

are performing as expected with respect to juvenile survival. Study plans shall be developed in coordination with the PRCC, NOAA Fisheries Service, and the U.S. Fish and Wildlife Service.

Article 11: Prescription for Wanapum Dam Spill

The primary routes for downstream juvenile passage at the Wanapum Development shall be the future unit bypass structure and the powerhouse. However, until Project survivals are known for all anadromous fish species covered in the Settlement Agreement (spring, summer, and fall Chinook salmon; sockeye salmon; and summer steelhead), spill through the Wanapum spillway shall remain a viable option for passage for these species. Until verification of improved downstream survivals to achieve survival performance standards, the Licensee shall continue to implement an interim spill program. The interim spill program shall include a spring spill level of 43% of average daily total river flow at Wanapum Dam, or TDG limits, whichever is less, and summer spill up to TDG limits at Wanapum Dam. Spill may be increased above 39% at Priest Rapids Dam if spill is limited by TDG limits at Wanapum Dam in order to contribute to attaining the applicable performance standards for the Project. These interim spill programs shall be implemented if determined necessary by NOAA Fisheries Service or the U.S. Fish and Wildlife Service and the PRCC to meet passage survival standards. These spill levels will remain in effect for spring and summer migrants until a better downstream passage alternative is identified through tests conducted by the Licensee (FWS)/Grant PUD (NOAA FS) and approved by NOAA Fisheries Service and the U.S. Fish and Wildlife Service, in consultation with the PRCC. These interim spill levels will be in effect for 95% of the spring and summer migrants passing Wanapum Dam, as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin annually on or before April 1. In consultation with the PRCC and with the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service, the Licensee may reduce spill as necessary to remain at or under TDG limits. Implementation and in-season management of spring spill shall be conducted as described in Action 5 of Appendix A of the Settlement Agreement (FWS)/Section 3.2.1.2 of the 2004 Biological Opinion (NOAA FS). The Licensee, in consultation with the PRCC (as described in Part V of the Settlement Agreement) and subject to approval by the U.S. Fish and Wildlife Service, may replace the interim spill regime at Wanapum Dam if more biologically efficient and effective measures are designed, tested and implemented.

While construction takes place on the downstream passage alternatives, the Licensee shall evaluate further modifications to the interim spill regime to evaluate potential improvements in juvenile survival. The evaluation will be based upon the best available route-specific and dam passage survival monitoring and testing information from previous evaluations. The evaluation may include the use of top spill or other passage routes, as alternatives to standard tainter gate or sluiceway spill to improve downstream

survivals and remain within applicable TDG limits. Such study proposal(s) shall be developed in consultation with the PRCC and subject to NOAA Fisheries Service and U.S. Fish and Wildlife Service approval, and studies shall be implemented in consultation with NOAA Fisheries Service and the U.S. Fish and Wildlife Service and the PRCC. The Licensee shall report on the results annually, as provided in Articles 24 and 25 below. Implementation and in-season management of spring spill shall be conducted as described in Action 6 of Appendix A of the Settlement Agreement (per FWS)/Section 3.1.1.2 of the 2004 Biological Opinion (per NOAA FS), and implementation of summer spill shall be determined by the PRCC. These modified spill levels shall be in effect or used in combination with interim spill, for 95% of the spring and summer migrants passing Priest Rapids Dam as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin on or before April 1. If testing indicates that equivalent or higher project survival can be achieved via alternative spill measures as compared to the current spill regime utilized during the spring out-migration, the Licensee shall use the alternative spill measures for the downstream passage until replaced by a permanent downstream passage program that achieves the project survival standards for juveniles as specified in Article 6. If testing indicates that equivalent or higher project juvenile survival cannot be achieved via alternative spill measures as compared to the interim spill regime described above, the Licensee shall continue interim spill as described above, until biological testing indicates that other passage measures are sufficient to meet project survival standards indicated in Article 6.

Through survival tests and route specific tests anticipated in the Settlement Agreement, the Licensee in consultation with the PRCC must attempt to identify and eliminate potential sources of potential fish injury at the Wanapum spillway. While testing alternative spill measures, the Licensee in consultation with the PRCC shall investigate changes to the spill patterns at Wanapum Dam in order to explore methods to improve juvenile survival through the spillway. Any changes to the spill pattern shall be implemented only after consultation with the PRCC and subject to approval by NOAA Fisheries Service and the U.S. Fish and Wildlife Service.

Article 12: Prescription for Wanapum Dam Total Dissolved Gas Abatement

The Licensee shall continue to implement the 2000 Total Dissolved Gas (TDG) Abatement Plan and coordinate any changes to the plan with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC, subject to approval by the Washington State Department of Ecology, NOAA Fisheries Service and the U.S. Fish and Wildlife Service. Implementation and in-season management of spill and water quality monitoring shall be conducted as described in Action 8 of Appendix A of the Settlement Agreement (FWS)/Section 3.1.1.3 of the 2004 Biological Opinion, unless modified in consultation with NOAA Fisheries Service and the PRCC, as described in Action 8 of Appendix A of the Settlement Agreement (NOAA FS).

Article 13: Prescription for Wanapum Dam Turbine Operations

The Licensee shall continue to optimize juvenile survival through the Wanapum Dam turbines. The Licensee shall coordinate any future study proposals with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC. Any subsequent changes to turbine operations to improve survival will require approval from NOAA Fisheries Service and the U.S. Fish and Wildlife Service and consultation with the PRCC.

Article 14: Prescriptions for Priest Rapids Dam Revised DPAAP

As part of Article 8, above, and as described in Action 12 of the Settlement Agreement, FERC shall require that Grant PUD annually revise a DPAAP which addresses the testing, evaluation and implementation of both capital and operational modifications at the Priest Rapids Dam and their expected effect on achieving the applicable performance standards for the Project. These capital or operational modifications shall be implemented to improve juvenile passage survivals while remaining within applicable TDG limits.

Article 15: Prescription for Priest Rapids Dam Alternative Top Spill Concepts

As part of the first phase of the DPAAP described in Article 14 above, the Licensee shall focus the specific downstream passage designs upon alternative application of top spill concepts. Prior to testing and construction, the Licensee shall, in consultation with the PRCC, prepare and submit to NOAA Fisheries Service and the U.S. Fish and Wildlife Service detailed design and engineering plans and schedules for its review and approval.

Article 16: Prescription for Priest Rapids Dam Spill Measures

Prior to construction of the long-term capital improvements, the Licensee shall evaluate further modifications to the spill regime at the dam to evaluate potential improvements in juvenile survivals at Priest Rapids Dam. The Licensee shall develop annual study plans for these evaluations. The studies shall be designed to evaluate possible alternatives to spill that may result in survival improvements over the basic spill program identified in this Article. Such study proposals shall be developed in consultation with the PRCC and subject to NOAA Fisheries Service and U.S. Fish and Wildlife Service approval. The Licensee shall report on the results annually, as provided in Article 25 below. In-season management of spill shall be conducted as described in Action 14 of Appendix A of the Settlement Agreement (FWS)/Section 3.2.1.2 of the 2004 Biological Opinion (NOAA FS).

While testing other spill alternatives, the Licensee shall investigate changes to the spill pattern at Priest Rapids Dam in order to explore methods to improve juvenile survival

through the spillway. Any changes to the spill pattern shall be implemented only after consultation with the PRCC and subject to approval by NOAA Fisheries Service and the U.S. Fish and Wildlife Service. Subject to the identification of better measures to improve downstream survival through the implementation of Articles 15, 16 and 17, the Licensee shall implement (as defined by the Settlement Agreement) a spring spill level of 61% (of average daily total river flow at Priest Rapids Dam), or TDG limits, whichever is less, for spring migrants (spring Chinook salmon, steelhead, and sockeye salmon) and summer spill up to 39% (of average daily total river flow at Priest Rapids Dam) to pass 95% of the summer juvenile migrants (fall and summer Chinook). Spill may be increased above these levels at Priest Rapids Dam if spill is limited by TDG limits at Wanapum Dam in order to contribute to attaining the applicable performance standards for the Project. These spill levels will remain in effect for spring and summer migrants until a better downstream passage alternative is identified, and tested by the Licensee, and approved by NOAA Fisheries Service and the U.S. Fish and Wildlife Service, in consultation with the PRCC. This spill level will be in effect for 95% of the spring migrants passing Priest Rapids Dam as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin annually on or before April 1. In consultation with the PRCC and with the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service, the Licensee may reduce spill as necessary to remain at or under the TDG limits. Implementation and in-season management of spill shall be conducted as described in Action 16 of Appendix A of the Settlement Agreement (FWS)/Section 3.2.1.2 of the 2004 Biological Opinion (NOAA FS). The Licensee, in consultation with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service, may replace interim spill at the Priest Rapids Development if more biologically efficient and effective measures are designed, tested and implemented.

Article 17: Prescription for Further Total Dissolved Gas Abatement at Priest Rapids Dam

In coordination with actions undertaken pursuant to Article 12, the Licensee shall investigate alternatives for reducing TDG production in the Priest Rapids spillway. Results of the 2003 monitoring program shall be provided to NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC in accordance with the Settlement Agreement, for discussion regarding possible alternatives for reducing TDG. In addition, development of fish passage alternatives at Priest Rapids Dam shall use the current 120% tailrace TDG limit as a design criterion. If NOAA Fisheries Service and the U.S. Fish and Wildlife Service, in consultation with the PRCC, determines that gas abatement measures are warranted, the Licensee shall implement studies as appropriate and promptly commence designing TDG reduction measures, in accordance with the Settlement Agreement. Implementation and in-season management of spill shall be conducted as described in Action 17 of Appendix A of the Settlement Agreement (FWS)/Section 3.2.1.3 of the 2004 Biological Opinion (NOAA FS).

Article 18: Prescription for Revised Turbine Operations at Priest Rapids Dam

The Licensee shall optimize juvenile survival through the Priest Rapids Dam turbines. The Licensee shall coordinate any future study proposals with NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC. The Licensee may make any subsequent changes to turbine operations to improve survival in consultation with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service.

Article 19: Prescription for Adult PIT Tag Detection, Priest Rapids Dam

The Licensee shall operate and maintain PIT tag detection capability in the right and left bank fishways at Priest Rapids Dam.

Article 20: Prescription for Priest Rapids Adult Trap

The Licensee shall complete construction of the off-ladder adult trap in the left bank fishway at Priest Rapids Dam for operation beginning in 2007. The Licensee, in coordination with the PRCC, may seek agreement on sharing the costs of constructing this facility with the Northwest Power Planning Council and other regional sources.

Article 21: Prescription for Priest Rapids Project Adult Fishway Improvements

The Licensee shall continue to investigate methods implemented for improving hydraulic conditions in the Priest Rapids project fishway collection channel, junction pool and entrance pools. Additional improvements, if required, shall be implemented during ladder outage periods. Schedule, design and implementation shall be undertaken in consultation with the PRCC and subject to NOAA Fisheries Service's and the U.S. Fish and Wildlife Service's approval.

Article 22: Prescription for Priest Rapids Project Adult Fish Counting

The Licensee shall maintain in working order the video monitoring equipment for counting adults migrating through the right and left bank fishways at Priest Rapids and Wanapum Dams. The Licensee shall post, in real time, adult fish passage data on its web site.

Article 23: Prescription for Adult Salmon and Steelhead Downstream Passage at Wanapum and Priest Rapids Dams

The Licensee shall operate project sluiceways at both dams continually from the end of summer spill until November 15 to provide a safer passage route for adult fallbacks. If

in-season monitoring indicates that these timeframes could be modified to improve adult downstream fish passage, the Licensee shall discuss in-season study results with the PRCC, and upon approval by NOAA Fisheries Service and the U.S. Fish and Wildlife Service, modify the time frame for operating project sluiceways.

Article 24: Prescription for Priest Rapids Project Annual Progress and Implementation Plans

The Licensee shall produce annual Progress and Implementation Plans that describe the implementation activities for the actions required in the Settlement Agreement. These Plans will report on the status of the actions required of the Licensee during each calendar year and the anticipated schedule of future actions and studies in the next planning period in the areas of juvenile and adult passage, habitat, and supplementation. The Progress and Implementation Plans will also report the results of monitoring, modeling or other analyses that take place in the calendar year to evaluate the degree to which the actions are likely to improve juvenile and adult survivals. The Progress and Implementation Plans will also provide an annual plan for the operation, inspection and maintenance of all juvenile and adult fishways at both Priest Rapids and Wanapum dams. The Licensee shall provide these Progress and Implementation Plans to NOAA Fisheries Service, the U.S. Fish and Wildlife Service and the PRCC by no later than February 15th of each year to assist in systems operational planning for that year.

Article 25: Prescription for Priest Rapids Project Periodic Program Evaluation Reports

At three-year intervals or as otherwise provided for in the approved Performance Evaluation Program developed pursuant to Action 35 in Appendix A to the Settlement Agreement, the Licensee shall prepare and submit to the PRCC a Performance Evaluation Report that will assess the ability of each program element to meet its program objectives and contribute to the overall achievement of the performance standards in Action 1, above. As may be provided in the approved Performance Evaluation Program, the Licensee may incorporate independent peer review by recognized experts, as approved by the PRCC, as it evaluates alternative fish passage survival improvements.

Article 26: Prescription for Program Coordination

The Licensee shall make reasonable efforts to coordinate the design of its Performance Evaluation Program with the development of relevant parallel monitoring or evaluation systems by other hydropower operators in the Columbia Basin and the Northwest Power Planning Council.

Article 27: Priest Rapids Project Adaptive Management

The Licensee shall implement the protection, mitigation, and enhancement (PME) measures contained in the Settlement Agreement according to the principals of adaptive management. Adaptive management is an active systematic process for continually improving management policies and practices by sequential learning from the outcomes of operational programs. To implement adaptive management the Licensee shall employ management programs that are designed to experimentally compare selective policies or practices by evaluating alternative hypotheses about the system being managed. The sequence of adaptive management steps shall include: (1) problem assessment, (2) project design, (3) implementation, (4) monitoring, (5) evaluation, and (6) adjustment of future decisions. Adaptive management shall not be complete until the planned management actions have been implemented, measured and evaluated and the resulting new knowledge has been fed back into the decision-making process to aid in future planning and management. The fundamental objective of adaptive management with respect to the Priest Rapids Project is to achieve the passage performance standards by 2013.

Article 28: Priest Rapids Project Monitoring and Evaluation Program

The Licensee shall develop and implement, in consultation with the PRCC and subject to the approval of NOAA Fisheries Service and the U.S. Fish and Wildlife Service, monitoring and evaluation programs designed to evaluate the success of the measures in this Agreement, including applicable performance standards, as described in Appendix A to the Settlement Agreement and consistent with Section 4.3 of the Settlement Agreement. This shall be accomplished for all Covered Species (FWS)/non-listed species (NOAA FS) in a manner and timeframe consistent with the requirements of the Performance Evaluation Program, Annual Progress and Implementation Plans, Periodic Program Evaluation Reports, and Program Coordination obligations stipulated (FWS)/requirements for listed species contained (NOAA FS) in Appendix A of the Settlement Agreement.

APPENDIX C

Reasonable and Prudent Measures and Accompanying Terms and Conditions Pursuant to the Incidental Take Statement of the National Marine Fishery Service's Biological Opinion

Reasonable and Prudent Measures

NMFS believes the following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize the impacts of incidental take associated with the proposed actions at the Project. In order to be exempt from the prohibitions of Section 9 of the ESA, FERC must incorporate into the License, and Grant PUD must comply with, all of the reasonable and prudent measures and terms and conditions set forth below.

1. Measures set forth in Section 9 of NMFS (2004), the Reasonable and Prudent Alternative Actions numbered 1 through 40, as modified in Section 2.9.6 (below), is hereby incorporated as a reasonable and prudent measure to be incorporated into the new FERC license for the Priest Rapids Hydroelectric Project.
2. To minimize the amount and extent of incidental take during the shutdown phase of turbine replacement at both the Wanapum and Priest Rapids developments, FERC shall ensure that Grant PUD salvages any listed species that are entrained in gatewells and draft tubes of any turbine unit being replaced.
3. To minimize the amount and extent of incidental take from construction activities in or near the water, FERC shall ensure that Grant PUD takes measures to minimize sediment suspension and to prevent toxic materials from entering the water.

Terms and Conditions

To be exempt from the prohibitions of Section 9 of the ESA, FERC must ensure that Grant PUD complies with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. In order to comply with reasonable and prudent measure one, above, the following terms and conditions shall be applied to the new license for the Project.
 - 1.1 Performance Standards (adapted from Action 1, NMFS 2004). FERC shall require Grant PUD to make steady progress towards achieving a minimum 91 percent combined adult and juvenile salmonid survival performance standard at the Priest Rapids and Wanapum developments (i.e., each dam). The 91 percent

standard includes a 93 percent Project-level (reservoir and dam) juvenile performance standard. NMFS recognizes that it is not currently possible to measure the 91 percent combined adult and juvenile survival standard. Grant PUD shall therefore continue to conduct dam and reservoir smolt survival studies, evaluating progress towards meeting a 93 percent juvenile Project passage survival. This standard can be measured at each development individually, or as a composite of survival at the two developments.

NMFS recognizes that the juvenile standard has been already achieved for UCR spring-run Chinook salmon. FERC shall require Grant PUD to at least maintain this level of survival. FERC shall ensure that Grant PUD achieves the juvenile standard for UCR steelhead, as measured after 3 consecutive years of evaluation, by 2013. Grant PUD can compensate for a failure to achieve the performance standard at one of its developments by exceeding the performance standard at the other development (i.e., at a minimum, by the same percentage amount below the survival performance standard at the development failing to meet performance standards). If Project survival exceeds the minimum combined juvenile and adult performance standard specified above, as measured per the specifications listed below, off-site mitigation obligations can be reduced by a commensurate amount.

- 1.2 Downstream Passage Alternatives Action Plan, Wanapum Development (adapted from Action 2, NMFS 2004). FERC shall require that Grant PUD, in coordination with the PRCC, revise the DPAAP as needed. The DPAAP shall be approved by NMFS and shall consist of the implementation and testing of capital measures designed to achieve the performance standards by 2013.
- 1.3 Completion of the Wanapum Dam Future Unit Bypass (adapted from Action 3, NMFS 2004). As part of the first phase of the DPAAP described above, FERC shall require Grant PUD to complete construction of the Wanapum FUB by the year 2008. Biological evaluations shall be completed as soon as practicable to ensure that this facility performs to a level that, at a minimum, contributes to achieving and maintaining the survival standards set forth in Action 1 above.
- 1.4 Advanced Turbines (adapted from Action 4, NMFS 2004). As a second component of the DPAAP, FERC shall require Grant PUD to complete replacement of the remaining turbines with the Advanced Hydro Turbine System at Wanapum Dam. FERC shall require Grant PUD to evaluate powerhouse passage with the new turbines in place. A preliminary schedule describing the timing and nature of future studies shall be completed for approval by the PRCC within 1 year after licensing issuance.

- 1.5 Primary Juvenile Passage Options, Wanapum Dam (adapted from Actions 5 and 6, NMFS 2004). The primary passage option at Wanapum Dam beginning in 2008 will be 20,000 cfs spill through the Wanapum FUB. If fish evaluations show that the Wanapum FUB is producing fish mortality at rates that impede the achievement and maintenance of the juvenile survival standard, then Grant PUD shall continue to evaluate and pursue solutions to improve FUB passage in order to satisfy the performance standard requirement. The existing spill program shall remain a viable passage alternative if the PRCC determines that it is necessary while solutions to the FUB are being determined.

The spill program shall be as follows: Grant PUD shall implement a spill level beginning at 43 percent of average daily total river flow, or TDG limits, for spring migrants. The spill level shall be managed by a spill team of the PRCC. The spill level will remain in effect for spring migrants until improvements to the Wanapum FUB are completed, or another alternative is developed. This spill level shall be in effect for at least 95 percent of the juvenile spring migration, as determined by in-season monitoring and index counts at Chelan County PUD's Rock Island Dam, and coordinated with the upstream developments. Monitoring of the downstream migration shall begin on or before April 1 each year and spill must commence before more than 2.5 percent of the spring migration has passed, and can conclude when 97.5 percent of the spring migration is complete, or on June 15, whichever occurs first. In consultation with the PRCC and with approval by NMFS, Grant PUD may reduce spill as necessary to remain at or under TDG limits or as determined necessary to optimize juvenile survival, including full termination of spill

- 1.6 Alternative Spill Patterns, Wanapum Dam (adapted from Action 7, NMFS 2004). Involuntary spill will occur at Wanapum Dam when river flow exceed powerhouse and FUB capacity. Alternative spill patterns may be evaluated as possible alternatives to existing spill patterns for the purpose of improving spillway survival during these events. FERC shall require Grant PUD to consult with the PRCC when changes to spill patterns are deemed necessary to improve survival. Any spill pattern must be approved by NMFS.
- 1.7 Total Dissolved Gas Abatement, Wanapum Dam (adapted from Action 8, NMFS 2004). FERC shall require Grant PUD to continue to implement a TDG Abatement Plan under the Project's 401 water quality certification and coordinate any changes in the plan with the PRCC.
- 1.8 Turbine Operations, Wanapum Dam (adapted from Action 9, NMFS 2004). FERC shall require Grant PUD to operate the Wanapum turbines in "fish mode" for 95 percent of the juvenile spring migration, as determined by in-season monitoring and index counts at Chelan County PUD's Rock Island

Dam. Monitoring shall begin on or before April 1 each year, and “fish mode” operation must commence before more than 2.5 percent of the spring migrants have passed and can conclude when 97.5 percent of the spring migration is complete, or on June 15, whichever occurs first. Any changes to turbine operations shall require approval from NMFS and consultation with the PRCC. FERC shall require Grant PUD to evaluate powerhouse passage with the new advanced turbines in place. A preliminary schedule describing the timing and nature of future studies shall be completed for approval by the PRCC within 1 year after licensing issuance.

- 1.9 Avian Predator Control (adapted from Action 10, NMFS 2004). FERC shall require Grant PUD to continue to fund an overall programmatic approach to the reduction of avian-related mortalities to salmon and steelhead populations affected by the Priest Rapids Project. The Avian Predator Control Program shall articulate the goals and objectives of the program, the measures to be undertaken by Grant PUD to achieve those goals and objectives, and the methods by which the success of those measures will be evaluated periodically, as determined by the PRCC.

FERC shall require Grant PUD to maintain the wires across the Wanapum powerhouse tailrace area in good condition to exclude avian predators. FERC shall require Grant PUD to evaluate the feasibility of installing additional wire arrays across the spillway tailrace within 12 months after issuance of the new license for the Project. If NMFS and the PRCC determine that wire installation across the spillway tailrace is feasible, Grant PUD shall install those wires before the 2010 juvenile fish passage season begins.

- 1.10 Northern Pikeminnow Removal Program (adapted from Action 11, NMFS 2004). FERC shall require Grant PUD to continue both the control and monitoring programs for Northern Pikeminnow. NMFS views these as long-term programs aimed at reducing juvenile salmon and steelhead mortality associated with predation by northern pikeminnow in the Wanapum development. This program will assist in achieving those goals and objectives consistent with other means and measures undertaken by Grant PUD to improve juvenile passage survival under consultation with the PRCC.
- 1.11 Downstream Passage Alternatives Action Plan, Priest Rapids Development (adapted from Action 12, NMFS 2004). FERC shall require that Grant PUD, in coordination with the PRCC, revise the DPAAP as needed. The DPAAP shall be approved by NMFS and shall consist of the implementation and testing of capital measures designed to achieve the performance standards by 2013.

- 1.12 Alternative Top-Spill Concepts, Priest Rapids Dam (adapted from Action 13, NMFS 2004). Grant PUD completed 1 year of biological testing (behavior evaluation) of a prototype top spill fish bypass at Priest Rapids Dam during the 2006 fish passage season. This field study is one component of a comprehensive assessment of design alternatives for non-turbine fish passage at Priest Rapids Dam. Other components include hydraulic and CFD modeling and mechanical engineering.

FERC shall require Grant PUD to develop a bypass facility for the Priest Rapids Development in consultation with NMFS and the PRCC. This facility shall, at a minimum, contribute to achieving and maintaining the survival standards set forth in Action 1 above. Final designs and subsequent evaluations of any new facility shall be done in consultation with, and approved by, the PRCC and NMFS.

- 1.13 Primary Juvenile Passage Option, Priest Rapids Dam (adapted from Action 14 and Action 15, NMFS 2004). Until a fish passage facility is developed, constructed, evaluated, and demonstrates that it will provide at least equal survival to the existing spill program, spill shall be the primary passage option at Priest Rapids Dam. If fish evaluations show that the current spill regime is causing fish mortality such that the survival standards cannot be achieved, then FERC shall require Grant PUD to evaluate modifications to the spill regime, including evaluation of spill patterns, to determine potential improvements in juvenile survival. Modifications to the spill regime and pattern at Priest Rapids Dam shall require approval of NMFS and the PRCC.

- 1.14 Spill Program, Priest Rapids Dam (adapted from Action 16, NMFS 2004). FERC shall require Grant PUD to implement a spill level of 61 percent of average daily total river flow, or TDG limits, whichever is less, for spring migrants. This spill level will remain in effect for spring migrants until a better downstream passage alternative is identified, tested, and approved by NMFS and the PRCC. These Priest Rapids spill levels must be in place for 95 percent of the juvenile spring migration, as determined by in-season monitoring and index counts at Chelan County PUD's Rock Island Dam, and coordinated with the upstream projects. Monitoring of the downstream migration shall begin on or before April 1 each year, and Priest Rapids spring migrant passage spill must commence before 2.5 percent of the spring migration has passed. The spring fish passage season will conclude when 97.5 percent of the migrants have passed, or on June 15, whichever occurs first. Grant PUD may reduce spill as necessary to remain at or under the TDG limits after consulting with the PRCC.

- 1.15 Total Dissolved Gas Abatement, Priest Rapids Dam (adapted from Action 17, NMFS 2004). FERC shall require Grant PUD to continue to implement a TDG

Abatement Plan under the Project's 401 water quality certification and coordinate any changes to the plan with the PRCC.

- 1.16 Turbine Operations, Priest Rapids Dam (adapted from Action 18, NMFS 2004). To maintain optimal powerhouse passage survival, FERC shall require Grant PUD to operate the Priest Rapids turbines in non-cavitation mode and run at least two adjacent turbines at any one time. These turbine operations must be in place for 95 percent of the juvenile spring migration, as determined by in-season monitoring and index counts at Chelan County PUD's Rock Island Dam, and coordinated with the upstream projects. Monitoring of the downstream migration shall begin on or before April 1 each year, and non-cavitation turbine mode operations must commence before 2.5 percent of the spring migration has passed. Non-cavitation turbine mode operations can conclude after 97.5 percent of the spring migration has passed, or on June 15, whichever occurs first. Any changes to turbine operations shall require approval from NMFS and the PRCC.
- 1.17 Avian Predator Control, Priest Rapids Dam (adapted from Action 19, NMFS 2004). In conjunction with the Avian Predator Control Program developed and implemented under Action 10 above, FERC shall require Grant PUD to maintain the wires across the Priest Rapids powerhouse tailrace area in good condition to exclude avian predators. FERC shall require Grant PUD to evaluate the feasibility of installing additional wire arrays across the spillway tailrace within 12 months after issuance of the new license for the Project. If NMFS and the PRCC determine that wire installation across the spillway tailrace is feasible, Grant PUD shall install those wires before the 2010 juvenile fish passage season begins.
- 1.18 Northern Pikeminnow Removal, Priest Rapids Development (adapted from Action 20, NMFS 2004). As a component of the Northern Pikeminnow Predator Reduction Program, FERC shall require Grant PUD to continue both the control and monitoring programs for Northern Pikeminnow. NMFS views these as long-term programs aimed at reducing juvenile salmon mortality associated with predation by northern pikeminnow in the Priest Rapids development. This program will achieve those goals and objectives consistent with other means and measures undertaken by Grant PUD to improve juvenile passage survival under consultation with the PRCC and NMFS.
- 1.19 Adult PIT Tag Detection, Priest Rapids Dam (adapted from Action 21, NMFS 2004). FERC shall require Grant PUD to maintain and operate the PIT tag detection system at Priest Rapids Dam. A PIT tag detection system was established in the Priest Rapids Dam fishways in spring 2003. The system consists of two detection weirs in the non-overflow section of each fishway.

Each detection weir has two submerged orifices, each equipped with a PIT tag antenna.

- 1.20 Adult Fish Trap, Priest Rapids Dam (adapted from Action 22, NMFS 2004). FERC shall require Grant PUD to maintain in good working order the Priest Rapids Dam off-ladder adult fish trap, and ensure that it is operational each year prior to startup for fish collection. Grant PUD shall make necessary repairs and modifications as determined necessary by NMFS and the PRCC. Timing of repairs or modifications shall be determined by Grant PUD in consultation with the PRCC.
- 1.21 Priest Rapids Adult Fishway Improvements (adapted from Action 23, NMFS 2004). FERC shall require Grant PUD to continue to operate and monitor the adult fishways at Priest Rapids Dam, and maintain all operating criteria established by NMFS. Any modifications or adjustments outside of normal day-to-day operations to adult fishways shall be done in consultation with the PRCC. Major modifications or adjustments shall require approval from NMFS.
- 1.22 Adult Fish Counting (adapted from Action 24, NMFS 2004). FERC shall require Grant PUD to maintain the video adult fish counting equipment at both developments in good condition and provide reliable fish count information. Grant PUD shall develop and submit annual reports for inclusion in regional databases.
- 1.23 Adult Steelhead Downstream Passage (adapted from Action 25, NMFS 2004). FERC shall require Grant PUD to operate the project sluiceways at both dams continually from the end of summer spill until November 15 to provide a safer passage route for adult steelhead fallbacks. If in-season monitoring indicates that these time frames could be modified to improve adult downstream fish passage, FERC shall require Grant PUD to discuss in-season study results with the PRCC, and upon approval by NMFS and the PRCC modify the time frame for operating project sluiceways.
- 1.24 Hatchery Subcommittee (adapted from Action 26, NMFS 2004). FERC shall require Grant PUD to continue to support the Priest Rapids Hatchery Subcommittee. This shall include provision of sufficient facilitation, administration, and clerical support to the Hatchery Subcommittee. This committee shall be the primary forum for implementing and directing supplementation measures for the Project's anadromous fish program. The Hatchery Subcommittee is comprised of NMFS, USFWS, WDFW, Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Reservation and Grant PUD.

Since January 2005, the Hatchery Subcommittee has met monthly to undertake and oversee the planning and implementation of the programs described in Actions 27-29 below. The committee operates on consensus regarding decisions directly linked to Project management. Unresolved disputes may be elevated to the PRCC, which shall use the February 10, 2006, Salmon and Steelhead Settlement Agreement process for dispute resolution if necessary. Decisions regarding management of anadromous fishery resources in the UCR basin not directly linked to the Project are the purview of the agencies and Tribes. When carrying out activities that may affect land and water resources within local watersheds, the Hatchery Subcommittee should coordinate with relevant local planning and permitting entities, including the Upper Columbia Salmon Recovery Board.

- 1.25 UCR Steelhead Supplementation Plan (adapted from Action 27, NMFS 2004). FERC shall require Grant PUD to complete, in consultation with the PRCC Hatchery Subcommittee and subject to NMFS approval, an Artificial Propagation Plan to rear 100,000 yearling UCR steelhead for release in the UCR basin. The plan shall be consistent with recovery criteria for UCR steelhead and other artificial propagation programs. New facilities are anticipated for this program and shall be constructed to rear a minimum of the production level of this plan plus 10 percent. The Hatchery Subcommittee has previously agreed that on an annual basis Grant PUD steelhead compensation responsibilities may be met by funding the Colville Tribes 20,000 steelhead in Omak Creek (Okanogan River) and the remaining 80,000 steelhead at the WDFW operated program at Wells Hatchery. The Hatchery Subcommittee further agreed that as the Omak Creek program develops, the Subcommittee will decide on appropriate adjustments to the apportionment described above. A comprehensive monitoring and evaluation program shall be included in the plan that includes monitoring in the natural environment and investigating the impacts of the hatchery program on the naturally produced steelhead population. Subject to Hatchery Subcommittee approval, the monitoring and evaluation program may be implemented in conjunction with ongoing or future monitoring and evaluation programs with other entities such as Chelan and Douglas County PUDs through cost-sharing agreements external to this Opinion.

- 1.26 UCR Spring-run Chinook Salmon Supplementation Plan (adapted from Action 28, NMFS 2004). FERC shall require Grant PUD to complete, in consultation with the PRCC Hatchery Subcommittee and subject to NMFS approval, an Artificial Propagation Plan to rear 600,000 yearling UCR spring-run Chinook salmon for release in the UCR basin. The plan shall be consistent with UCR spring-run Chinook salmon recovery criteria and other UCR spring-run Chinook salmon artificial propagation programs. New facilities are anticipated

to be necessary for this program and shall be constructed to rear a minimum of the production level plus 10 percent. A comprehensive monitoring and evaluation program shall be included in the plan that includes monitoring in the natural environment and investigating the impacts of the hatchery program on the naturally produced spring Chinook salmon population. Subject to Hatchery Subcommittee approval, the monitoring and evaluation program may be implemented in conjunction with ongoing or future monitoring and evaluation programs with other entities such as Chelan and Douglas County PUDs through cost-sharing agreements external to this Opinion. If term and conditions 1.27 through 1.29 below are determined by the Hatchery Subcommittee and NMFS to not be implementable, then alternative programs that would achieve a similar purpose shall be developed and implemented as soon as practical, but not later than 2011.

- 1.27 White River Spring-Run Chinook Salmon Program (adapted from Action 29, NMFS 2004). Consistent with term and condition 1.26 above, FERC shall require Grant PUD to continue to implement the White River spring-run Chinook salmon program. This shall include, but is not limited to, the development of rearing (may be outside the White River Basin) and acclimation (in the White River Basin) facilities. This program shall be implemented to reach a yearling smolt production level of a total of 150,000 fish.

FERC shall require Grant PUD to work in consultation with the PRCC and its Hatchery Subcommittee and with approval by NMFS to develop a phased implementation schedule for the White River spring-run Chinook Program. The schedule shall include deadlines for site identification, facility design, Hatchery and Genetic Management Plan approval, the obtaining of necessary regulatory approvals, and the commencement of construction. The design of the required facilities shall be at the compensation level capacity plus 10 percent.

- 1.28 Nason Creek Spring-Run Chinook Salmon Program (adapted from Action 30, NMFS 2004). Consistent with term and condition 1.26 above, FERC shall require Grant PUD to continue their work to implement artificial propagation for spring-run Chinook salmon in Nason Creek. This may include, but is not limited to, development of rearing and acclimation facilities. Grant PUD has purchased property in the Nason Creek drainage, which supports incubation, rearing and acclimation facilities. Grant PUD is also in the design process of an adult trapping facility and juvenile acclimation site to rear a total of 250,000 yearling smolts, if determined necessary by the Hatchery Subcommittee and NMFS.

FERC shall require Grant PUD working in consultation with the PRCC Hatchery Subcommittee and with approval by NMFS to develop a phased implementation schedule for these actions. The schedule shall include deadlines for site identification, facility design, the obtaining of necessary regulatory approvals, and the commencement of construction. The design of the required facilities should factor in an additional 10% buffer in production capacity beyond the production levels required above. This program is expected to be fully operational by 2011.

- 1.29 Methow River Basin Spring-Run Chinook Salmon Program (adapted from Action 31, NMFS 2004). Consistent with term and condition 1.26 above, FERC shall require Grant PUD to implement a supplementation program for spring-run Chinook salmon in the Methow River basin. This may include, but is not limited to, development of rearing and acclimation facilities, and improvements at current hatchery facilities in the Methow basin. Grant PUD may, in consultation with the PRCC and NMFS, work with the HCP and Priest Rapids Hatchery Subcommittees to renew cost sharing agreements for supplementation of Methow River Basin Spring-run Chinook salmon.
- 1.30 Habitat Subcommittee (adapted from Action 32, NMFS 2004). FERC shall require Grant PUD to continue support of the PRCC Habitat Subcommittee. This shall include provision of sufficient facilitation, administration, and clerical support to the subcommittee. The Habitat Subcommittee shall be the primary forum for implementing and directing habitat protection and restoration measures for the Project's anadromous fish program. This subcommittee is comprised of NMFS, USFWS, WDFW, Confederated Tribes of the Colville Reservation, Yakama Nation, Confederated Tribes of the Umatilla Reservation and Grant PUD.

Since January 2005, the Habitat Subcommittee has met monthly to undertake and oversee the planning and implementation of the necessary program elements to support habitat protection and restoration programs. The committee operates on consensus regarding decisions directly linked to Project management. Unresolved disputes may be elevated to the PRCC, which shall use the February 10, 2006, Salmon and Steelhead Settlement Agreement process for dispute resolution if necessary. Decisions regarding management of anadromous fishery resources in the UCR basin not directly linked to the Project are the purview of the agencies and Tribes. When carrying out activities that may affect local tributary habitat, the Habitat Subcommittee should seek advice from local entities, including the Upper Columbia Salmon Recovery Board in development of such activities.

- 1.31 Habitat Plan (adapted from Action 33, NMFS 2004). FERC shall require Grant

PUD, in consultation with the PRCC Habitat Subcommittee, to periodically review and update the Habitat Plan that has been developed by the Habitat Subcommittee. The Habitat Plan is designed to shepherd the development and implementation of UCR spring-run Chinook salmon and UCR steelhead habitat protection and restoration. The Habitat Plan shall be modified from time to time as determined necessary by the Habitat Subcommittee and NMFS.

- 1.32 Habitat Account (adapted from Action 34, NMFS 2004). FERC shall require Grant PUD to continue to provide \$288,600 annually to the Priest Rapids Habitat Conservation Account (specified in 2003 dollars - annually adjusted per the U.S. Department of Labor, Bureau of Labor Statistics CPI for Western Region). These funds are specifically directed toward habitat actions that directly benefit UCR spring-run Chinook salmon and UCR steelhead.
- 1.33 Performance Evaluation Program (adapted from Actions 35, 36 and 37, NMFS 2004). FERC shall require Grant PUD to prepare an annual summary report of progress under the requirements of this Opinion. The report shall reflect all activities and progress during the pervious calendar year. The purpose of the program is to provide a reliable technical basis to assess the degree to which Grant PUD is improving juvenile and adult passage survivals, habitat productivity improvements, and supplementation for the listed anadromous fishery resources affected by the Project. The annual report shall also include results of monitoring, modeling, or other analyses that take place in the calendar year to evaluate the degree to which the actions are likely to improve juvenile and adult survivals.

Where appropriate, the Performance Evaluation Program shall measure and evaluate individual actions within each category, assess the contribution of the action to the desired objective, and provide a basis for identifying new options and priorities among those options for further progress in meeting objectives. This Performance Evaluation Program shall consist of annual progress and implementation reports and periodic performance evaluations to assess overall performance in meeting the survival standards.

- 1.34 Program Coordination (adapted from Action 38, NMFS 2004). FERC shall require that Grant PUD coordinate the design of its Performance Evaluation Program with the development of relevant parallel monitoring or evaluation systems by other hydropower operators in the Columbia Basin and the Northwest Power Planning Council. The purpose of such coordination shall be to promote technical consistency and compatibility among these efforts to contribute to a comprehensive evaluation of stock performances throughout the Columbia Basin. This coordination shall also promote the use of the best available science and shall provide opportunities for the efficient sharing of

monitoring activities, data management systems, analytical modeling, and other activities.

Grant PUD meets monthly with the Public Utility District No.1 of Chelan County and Public Utility District No. 1 of Douglas County to discuss and coordinate on potential fish evaluations and resource issues. Grant PUD staff also participate in the HCP Hatchery and HCP Habitat subcommittees to coordinate among the various programs. Grant PUD also attends regional meetings and forums to promote technical consistency and compatibility among these efforts to contribute to a comprehensive evaluation of stock performances throughout the Columbia Basin. Grant PUD proposes to continue to coordinate and seek out opportunities for the efficient sharing of monitoring activities, data management systems, analytical modeling, and other activities.

- 1.35 Priest Rapids Coordinating Committee (adapted from Action 39, NFMS 2004). FERC shall require Grant PUD to continue to support the Priest Rapids Coordinating Committee. The PRCC oversees implementation of the anadromous fish activities associated with the Priest Rapids Project, including the requirements of this opinion. Among other things, it shall approve or modify annual Progress & Implementation Plans; approve or modify the Performance Evaluation Program; review Performance Evaluation Reports; advocate decisions of the Committee in all relevant regulatory forums; establish such subcommittees as it deems useful (in addition to the Habitat and Hatchery Subcommittees required above); resolve disputes elevated from subcommittees; and conduct other business as may be appropriate for the efficient and effective implementation of these measures.
2. In order to comply with reasonable and prudent measure two, above, the following terms and conditions shall be applied to the new license for the Project.
 - 2.1 Prior to dewatering the unit, FERC shall require that the emergency wheel gate gatewells be dip netted twice per slot using best management practices for gatewell dipping and transportation to avoid or minimize stress on listed fish.
 - 2.2 FERC shall require that Grant PUD install the downstream bulkhead as soon as reasonably practicable after installation of the upstream bulkhead to reduce the likelihood that listed species in the tailrace enter the draft tube and become entrapped after the installation of the downstream bulkhead.
 - 2.3 If the downstream bulkhead cannot be installed within 24 hours of the upstream bulkhead, FERC shall require Grant PUD to inspect the draft tube for the presence of listed fish and without delay remove and transport them for prompt reentry into the river using best management practices for dipnetting and

- transportation to minimize stress on listed species.
- 2.4 FERC shall require that Grant PUD record and report the number and species, if any, of fish entrained during the shutdown phase.
 3. In order to comply with reasonable and prudent measure three, above, the following terms and conditions shall be applied to the new license for the Project.

Pollution and Erosion Control Plan

Prepare and carry out a pollution and erosion control plan to prevent pollution caused by surveying or construction operations. The plan must be available for inspection on request by the permitting agencies and NMFS.

1. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
 - a. The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.
 - b. Practices to prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.
 - c. Practices to confine, remove, and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.
 - d. 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.
 - e. 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.
 - f. 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.
2. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are

working adequately.¹⁹⁷

- a. 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.
 - b. Remove sediment from erosion controls once it has reached $\frac{1}{3}$ of the exposed height of the control.
3. 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.
- a. *Water quality.* Design, build and maintain facilities to collect and treat all construction discharge water, including any contaminated water produced by drilling, 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.
 - b. *Discharge velocity.* If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed 1 inch.
 - c. *Pollutants.* Do not allow pollutants including green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any wetland or the 2-year floodplain.
 - d. *Drilling discharge.* All drilling equipment, drill recovery and recycling pits, and any waste or spoil produced, will be completely isolated to prevent drilling fluids or other wastes from entering the stream.
 - i. All drilling fluids and waste will be completely recovered then recycled or disposed to prevent entry into flowing water.
 - ii. Drilling fluids will be recycled using a tank instead of drill recovery/recycling pits, whenever feasible.

When drilling is completed, attempts will be made to remove the remaining drilling fluid from the sleeve (e.g., by pumping) to reduce turbidity when the sleeve is removed.

¹⁹⁷Working adequately means that project activities do not increase ambient stream turbidity by more than 10 percent above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

APPENDIX D

Reasonable and Prudent Measures and Accompanying Terms and Conditions Pursuant to the Incidental Take Statement of the U.S. Fish and Wildlife Service's Biological Opinion

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize the impacts of take of the bull trout. These RPMs and accompanying terms and conditions shall be integrated into a Bull Trout Management Plan to be completed by Grant PUD within 1 year of the issuance of this Biological Opinion. Specific elements shall include the following:

- RPM 1. FERC shall require Grant PUD, in coordination with the Service, to provide adequate year-round passage conditions for bull trout at Project facilities.
- RPM 2. FERC shall require Grant PUD, in coordination with the Service, to design and implement a bull trout monitoring program that will adequately detect Project impacts, including those caused by hydrologic modifications and changes in water quality, on adult and sub-adult bull trout.
- RPM 3. FERC shall require Grant PUD, in coordination with the Service and the PRCC, to implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout.
- RPM 4. FERC shall require Grant PUD, in coordination with the Service, to minimize the effects of the White River Spring Chinook Supplementation Program to all life stages of bull trout.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Commission and Grant PUD must comply with the following terms and conditions, which implement the RPMs described above. These terms and conditions are non-discretionary.

The Service believes the following terms and conditions are necessary and appropriate to minimize the impacts of take of the bull trout during the term of the Project's new operating license:

1. To implement RPM 1, FERC shall require Grant PUD, in coordination with the Service, to continue operating the existing adult upstream fishways at Project dams year-

round. These facilities shall be operated according to criteria agreed to in the Priest Rapids Salmon and Steelhead Settlement Agreement (109 FERC ¶ 62,216) and/or Grant PUD's annual Fishway Operating Plans. During winter maintenance activities, only one fishway shall be closed at any one time at each Project facility to ensure that bull trout passage is possible at all times.

2. To implement RPMs 1 and 2, FERC shall require Grant PUD to develop and implement a bull trout monitoring plan, including the counting and reporting of all bull trout life stages moving past Wanapum and Priest Rapids dams between April 15 and November 15 of each year, for an experimental period of five years. The plan shall be developed in coordination with and shall be approved by the Service within one year of the Commission's issuance of a new operating license to Grant PUD. The monitoring plan shall include provisions for adaptive management to address changing conditions, assess on-going adverse effects, and investigate potential corrective actions. This may include evaluating the efficiency of upstream and downstream passage for all life stages of the bull trout (e.g., fishway water velocity impacts to subadults), development of survival standards for bull trout, development of a genetics baseline (i.e., using non-lethal means such as fin clips), and investigation of potential corrective actions for project-related water quality degradation. Annual reports regarding observations, effects, or monitoring results specific to bull trout shall be prepared and submitted by Grant PUD to the Service. In addition, FERC shall require Grant PUD, in coordination with the Service, to develop or identify an appropriate forum to address the issues raised in these reports.

3. To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to record and report bull trout occurrences during the following activities: fish counting at fishways; juvenile bypass activities; gateway dipping; turbine maintenance activities; fishway maintenance activities; hatchery activities; and northern pikeminnow control program activities. Bull trout detections shall be reported to the Service per the reporting requirements above under term and condition 2.

4. To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to PIT tag sub-adult bull trout whenever they are incidentally captured during on-going PIT tagging efforts conducted for anadromous and other fish management activities. Bull trout detections shall be reported to the Service per the reporting requirements above under term and condition 2.

5. To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to report incidental take as precisely as possible. In order to accomplish the monitoring of take, the Service suggests the use of empirically collected data including PIT-tagging, radio-telemetry, or other appropriate technology.

6. To implement RPM 2, FERC shall require Grant PUD, in coordination with the

Service, to collect genetic samples of all bull trout over 70 mm handled as part of ordinary Project operations. This may provide valuable information on the conservation status and genetic relationships between bull trout populations in the Columbia basin. This is consistent with the existing permit for the operation of screw trap collection.

7. To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to develop and implement a plan to collect data for evaluating the effect of hydrologic variations and water quality impacts on all bull trout life stages within Project reservoirs. The plan shall include provisions for adaptive management to address changing conditions, assess on-going effects, and investigate potential corrective actions. These data shall be reported annually to the Service per the reporting requirements above under Term and Condition 2.

8. To implement RPM 3, FERC shall require Grant PUD, in coordination with the Service and the PRCC, to implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout.

9. To implement RPM 4, FERC shall require Grant PUD, to minimize impacts to bull trout redds. Disturbance of or impacts to bull trout habitat shall be minimized during all activities associated with the White River Spring Chinook Supplementation Program. Grant PUD shall take precautions so as to avoid stepping in/on areas that may be potential redd locations for resident or fluvial/adfluvial bull trout (i.e., small gravel deposits behind boulders; under overhanging vegetation; near wood debris or logs; or areas of hydraulic influence such as confluences of tributaries, springs, seeps, pool tail crests, or edges of pools), since redds of resident and small fluvial/adfluvial bull trout at these locations may be difficult to see due to their small size.

10. To implement RPM 4, FERC shall require Grant PUD to avoid disturbance of spawning bull trout. Any purposeful take of bull trout that are spawning or are near spawning is prohibited. Grant PUD shall minimize activities near actively-spawning bull trout as well as post-spawned bull trout that appear to be in a weakened condition.

11. To implement RPM 4, FERC shall require Grant PUD, to monitor traps (i.e., redd caps and minnow traps) at least 1 time daily. Traps should be checked more frequently (at least 2 times a day) when any bull trout are captured or if crowding produced by an increasing catch rate results in a higher probability of injury or death to bull trout being held in the live box.

12. To implement RPM 4, FERC shall require Grant PUD to conduct all seining during the daylight hours, excluding the first hour after sunrise and the hour prior to sunset. This should minimize the exposure of juvenile and sub-adult bull trout to accidental capture.

13. To implement RPM 4, FERC shall require Grant PUD to avoid hydraulic sampling of Chinook eggs in areas where redd superimposition is suspected (i.e., areas where individual Chinook and bull trout redds directly overlap). The primary reach of concern is from the Napeequa River to Panther Creek. This should minimize the likelihood of direct removal of bull trout eggs or fry from the substrate.

14. To implement RPMs 2 and 4, FERC shall require Grant PUD, in coordination with the Service, to conduct water and sediment sampling related to the discharges of degraded water from acclimation facilities. This information will provide a metric to quantify effects to the bull trout and state water quality standards, and may be used to develop or refine the anticipated level of incidental take.

Reporting Requirements

In order to monitor the impacts of incidental take, Grant PUD shall prepare a report describing the progress of implementing the proposed relicensing and its impact on the bull trout. The report, which shall be submitted to the Central Washington Field Office annually on or before February 1, shall list and describe the work that was completed and the number of bull trout, if any, observed or incidentally taken during the course of implementing the Project.

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the nearest Service Law Enforcement Office (Spokane, Washington; telephone 509.928.6050). Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

The RPMs, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take described above is exceeded, such incidental take represents new information requiring reinitiation of consultation (assuming the Commission retains discretion or control over the action) and review of the RPMs provided. Grant PUD must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the RPMs.

APPENDIX E

The Priest Rapids Salmon and Steelhead Settlement Agreement

Part I. Parties

1.1 Parties. This Settlement Agreement (Agreement) is entered into by Public Utility District No. 2 of Grant County (Grant PUD), the United States Department of Interior U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA Fisheries), the Washington Department of Fish and Wildlife (WDFW), Confederated Tribes of the Colville Reservation (CCT), and those other fishery agencies and Tribes that are signatories to this Agreement, herein collectively referred to as the “Parties.” NOAA Fisheries, USFWS, WDFW, CCT and those other fishery agencies and Tribes that are signatories to this Agreement may be referred to as the “Governmental and Tribal Parties.”

Part II. General Provisions

2.1 Purpose. The Parties have entered into this Agreement for the purpose of resolving all issues between Grant PUD and the other signatories related to Covered Species in connection with Grant PUD’s existing and its New License for the Priest Rapids Project, FERC No. 2114 (Project). This Agreement is intended to constitute a comprehensive and long-term adaptive management program for the protection, mitigation, and enhancement of Covered Species which pass or may be affected by the Project. For these purposes the Parties agree that this Agreement is fair and reasonable and in the public interest within the meaning of FERC Rule 602 governing offers of settlement (18 CFR § 385.602(g)(3)).

2.2 Effective Date. This Agreement shall take effect when signed by NOAA Fisheries, USFWS, WDFW, CCT, and Grant PUD. The date of last signature of Grant PUD, NOAA Fisheries, USFWS, CCT, and WDFW shall be the Effective Date. The Yakama Nation and the Confederated Tribes of the Umatilla Indian Reservation are invited and encouraged to sign this Agreement and upon signing on or before 6 months from the Effective Date may participate as Parties in its implementation as though they had executed this Agreement on the Effective Date.

2.3 Early Implementation. The Parties agree to commence implementation of this Agreement immediately upon the Effective Date.

2.4 Revisions. Parts I through XV of this Agreement may be modified by written agreement of all of the Parties. If any amendments would require the approval of FERC prior to implementation, they will become effective upon approval by FERC.

2.5 Duration and Rights of Withdrawal

2.5.1 Duration. This Agreement shall remain in effect through the expiration of the original license for the Project, any annual licenses issued thereafter and through the term of the New License for the Project, unless it is terminated earlier as provided herein.

2.5.2 Withdrawal Prior to Issuance of New License. Any Party may withdraw from this Agreement prior to the issuance by FERC of a New License if any of the following events occur: (1) any agency with mandatory conditioning authority under Sections 4(e) or 18 of the Federal Power Act (FPA) or under Section 401 of the Clean Water Act submits to FERC mandatory conditions for inclusion in the New License which are materially and significantly inconsistent with the terms of this Agreement; or (2) NOAA Fisheries issues any new biological opinion for listed Covered Species affected by the Project which includes conditions in its incidental take statement that are materially and significantly different from the terms of this Agreement.

Any Party seeking to withdraw pursuant to Section 2.5.2 must: (1) within 60 days of the submission of the condition(s) in question, provide written notice of its intent to withdraw to the other Parties together with an explanation of its reasons for doing so; (2) convene a meeting of the Parties no sooner than 10 and no later than 30 days from the date of its notice for the purpose of attempting to resolve the issue. If within 30 days of the date of the convening of such a meeting the Parties are unable to resolve the issue to the satisfaction of the Party which gave notice of its intention to withdraw, that Party may withdraw from the Agreement upon giving a final notice of withdrawal to the other Parties and to FERC. In the event that Grant PUD withdraws from this Agreement pursuant to this paragraph, this Agreement shall terminate and have no further force and effect.

2.5.3 FERC Order Modifying Agreement. In the event that FERC issues a New License that a Party believes modifies, directly or indirectly, any of the terms and conditions of this Agreement, that Party may within 30-days of the issuance of the New License, request rehearing in which case such rehearing request shall be deemed notice to other Parties of its objection based on a material and significant inconsistency between the Agreement and the FERC order. Thereafter if those objections are not resolved by the issuance of a subsequent FERC order, or by the Parties themselves within 60-days of the issuance of that subsequent order, whichever is later, the Party may withdraw from this Agreement. In the event, however, that one or more Parties has filed a timely petition for judicial review challenging the FERC modification(s) in question, the withdrawal shall not become effective until and unless the appellate court issues a decision affirming the FERC order or the appeal proceeding is otherwise resolved in favor of FERC on that issue.

2.5.4 Submission of Conditions Pursuant to Reserved Authority Following Issuance of New License. The Parties agree that following the issuance of the New License no Governmental or Tribal Party shall submit to FERC, pursuant to any statutory or reserved authority, additional conditions relating to Covered Species (other than those agreed upon through the adaptive management program contained in this Agreement) unless, before submitting such conditions to FERC, it: (i) finds that such conditions are necessary because of new scientific information which substantially alters the biological assessment and the administrative record regarding the impact of the Project on Covered Species developed in support of the Agreement as reflected in the FERC administrative record; (ii) provides 60 days prior notice, except in emergency situations to the other Parties, of the proposed conditions together with a reasonable documentation and explanation relating to the new scientific information that supports the conditions; and (iii) includes in any subsequent submission to FERC copies of any comments provided by the other Parties together with the agency's responses to those comments. This Section 2.5.4 shall not preclude a Party from submitting a condition for consideration by FERC if such condition pertains to a Project action proposed by Grant PUD to FERC outside the scope of this Agreement. Additionally, the Parties further acknowledge that an express reservation of authority by any governmental agency Party with mandatory conditioning authority, included in any filing that is otherwise consistent with this Agreement, shall not violate the terms of this Section 2.5.4.

2.5.5 Withdrawal After New License Has Become Effective. In the event that following the issuance of the New License, any Governmental or Tribal Party submits to FERC for inclusion in the license, pursuant to any statutory or reserved authority, any condition for Covered Species, other than those conditions agreed upon through the adaptive management program, that is materially and significantly different from the terms contained in this Agreement, which would, if adopted, materially and significantly affect a Party's interest, that Party may withdraw from this Agreement. Prior to withdrawing the Party must: (i) within 60 days of the submission of the condition(s) in question, provide written notice of its intent to withdraw to the other Parties together with an explanation of its reasons for doing so; and (ii) convene a meeting of the Parties no sooner than 30 and not later than 60 days from the date of the notice for the purpose of attempting to resolve the issue. If within 90 days of the date of the convening of such a meeting (or such extended date to which the Parties may agree), the Parties are unable to resolve the issue, the Party may withdraw from the Agreement upon giving a final notice of withdrawal to the other Parties and to FERC.

2.6 Assurances Regarding Fish Protection Measures. So long as this Agreement remains in effect, each Party agrees that it shall not itself or through third parties directly or indirectly advocate or support to non-Parties fish protection measures for Covered Species other than those set forth in this Agreement or those measures agreed to through the adaptive management program contained in this Agreement. As long as no Governmental Party seeks to exercise its FPA Section 18 authority to prescribe fish

protection measures for Covered Species which are materially inconsistent with those set forth in this Agreement or those agreed to through the adaptive management program contained in this Agreement, no Party shall (i) seek an agency trial-type hearing on issues of material fact under Section 18 of the FPA; (ii) propose alternative conditions under Section 33 of the FPA; or (iii) support any alternative conditions or trial-type hearings proposed or requested by any non-Party. The Parties further agree that they will make reasonable efforts to support the Governmental Parties, as appropriate, if an alternative condition is proposed or a trial-type hearing is requested by any non-Party. This Section 2.6 shall not prohibit a Party from (i) exercising its rights to withdraw from this Agreement; (ii) or petition FERC pursuant to Part VI of this Agreement; (iii) or seek trial-type hearings under Section 18 of the FPA and propose alternative conditions with respect to fishway prescriptions involving non-Covered Species.

2.7 Relationship to Hanford Reach Fall Chinook Protection Program Agreement. On April 5, 2004, some of the Parties to this Agreement and other entities executed the Hanford Reach Fall Chinook Protection Program Agreement (HRFCPP Agreement) that replaced the original Vernita Bar Agreement of 1988. Grant's compliance with the HRFCPP Agreement shall be a component of the fish protection and mitigation measures of this Agreement.

The Governmental and Tribal Parties to this Settlement Agreement desire to do annual monitoring and evaluation of flow scenarios in the Hanford Reach prior to 2011, the date for potential evaluation currently anticipated under the HRFCPP Agreement [Section C.6.(c)]. The desirability of such evaluation stems from an interest in better understanding how flows in the Hanford Reach impact fall Chinook migration, spawning and rearing. In the event that any of the Governmental and Tribal Parties to this Agreement desire to undertake the evaluation and monitoring of the effectiveness of the various flow scenarios implemented and to be implemented under the HRFCPP Agreement, Grant PUD will cooperate with such Parties in providing appropriate and timely information on flows and flow schedules. The Parties agree that the results of such evaluation and monitoring shall be available to all the Parties as soon as is reasonably practicable.

If the Parties to the HRFCPP Agreement agree to conduct flow evaluations related to impacts to fall Chinook or collect field data prior to 2011, Grant PUD agrees to convene a joint working group and to participate in the design, funding and implementation of the monitoring and evaluation. Such working group shall be comprised of members of the Priest Rapids Coordinating Committee (PRCC) as well as the parties to the HRFCPP Agreement. The members of the working group shall develop by consensus procedures, as appropriate, for decision making in this forum.

Part III. Relationship to the Federal Energy Regulatory Commission

3.1 FERC Filing. Grant PUD shall file this Agreement with FERC within 45 days of the Effective Date with an Offer of Settlement that will request that FERC approve this Agreement in its entirety as part of the New License for the Project and include as conditions of the New License all of the obligations of Grant PUD set forth in this Agreement and Appendix A.

3.2 Enforcement. The Parties intend that all of the obligations of Grant PUD under this Agreement be enforceable terms of the New License issued for the Project by FERC.

3.2.1 Consistency and Compliance With Statutory Obligations. By entering into this Agreement, the Governmental and Tribal Parties represent that they believe their statutory and other legal obligations as to Covered Species are, or can be, met through implementation of this Agreement and development of recommendations, terms and conditions consistent with this Agreement that are submitted to FERC for inclusion in the New License. Provided however, nothing in this Agreement is intended or shall be construed to preclude any Governmental or Tribal Party from complying with its obligations under applicable laws and regulations. This Agreement shall not be interpreted to predetermine the outcome of any environmental or administrative review or appeal process.

3.3 FERC Filings By Governmental and Tribal Parties. Subject to paragraph 3.2.1, the Governmental and Tribal Parties will: a.) recommend to FERC that this Agreement be approved in its entirety and without modification b.) agree to join in the Joint Explanatory Statement in support of this Agreement to FERC; and c.) agree that as to Covered Species: i) that the individual agency's or tribe's complete and final recommendations, conditions, and/or prescriptions pursuant to Sections 4(e), 10(a), 10(j), and 18 of the FPA, to the extent those sections are applicable to the agency or tribe, will be consistent with this Agreement; ii) that any comments or responses to comments filed by them with FERC in the context of the relicensing process will be consistent with this Agreement; and iii) will actively support, in all regulatory proceedings in which they participate that are related to the relicensing of the Project, regulatory actions consistent with this Agreement.

3.4 Endangered Species Act (ESA). This Agreement does not include specific measures for species listed by USFWS as threatened or endangered, and consequently, USFWS reserves the right to take such future actions as it may deem appropriate under the ESA for species other than Covered Species. Grant PUD and NOAA Fisheries have worked collaboratively to develop measures in this Agreement to address the needs of ESA listed salmon and steelhead species. If FERC issues a Biological Assessment that properly incorporates the terms of this Agreement and is not materially different than the

provisions of this Agreement, and if no new scientific information that is materially different becomes available during the consultation process, NOAA Fisheries anticipates that the measures contained in this Agreement, as well as implementing the Actions listed in Appendix A to this Agreement, will be adequate to avoid a jeopardy finding and minimize any incidental take occurring as a result of implementation of this Agreement for Covered Species that are presently listed as threatened or endangered under the ESA. However, nothing in this Agreement shall be construed to predetermine the outcome of any ESA consultation. NOAA Fisheries reserves the right, consistent with federal law and subject to the terms of this Agreement, to take such future actions as it may deem necessary to meet its obligations under the ESA. If during consultation with FERC pursuant to Section 7 of the Endangered Species Act, NOAA Fisheries requests any conservation measures that are materially inconsistent with the terms of this Agreement, the provisions of Section 2.5 of this Agreement will apply. Nothing in this Agreement shall limit or waive the authority of NOAA Fisheries to take whatever action it may deem necessary if the New License fails to satisfy fully the requirements of the ESA, including failing to adopt as license conditions the terms and conditions contained in a biological opinion issued by NOAA Fisheries, provided that if such NOAA Fisheries action is materially inconsistent with this Agreement, Grant shall have the right to withdraw from the Agreement as set forth in Section 2.5.

Part IV. Implementation of this Agreement

4.1 Implementation Schedules. The implementation and reporting requirements for the listed species measures contained in Appendix A shall, as appropriate, be extended to apply to the non-listed species as herein described. In the event that the Agreement does not provide for a specific implementation schedule for a measure, the schedule shall be developed by the Parties through the annual and triennial planning processes required by the Agreement to provide for implementation to occur as soon as is practicable.

4.2 Standard of Care. The Parties agree that Grant PUD and the other Parties shall use the most current and best available scientific information and analysis as the standard of care for implementing this Agreement. All facilities to be designed, constructed, modified, or operated under this Agreement shall be designed, constructed and operated using quality materials and current generally-accepted professional standards of care. Other activities required by this Agreement, including the research, monitoring and evaluation activities, shall also be governed by a similar standard of care.

In the event that the Parties advocate two or more alternatives to a study methodology, or measure or action, the Parties agree that Grant PUD and the other Parties shall evaluate and select the course of action based on the following criteria: 1) likelihood of biological success; 2) time required to implement; and 3) cost-effectiveness of solutions, but only where the Parties agree that two or more alternatives are comparable in their biological effectiveness.

4.3 Adaptive Management. The Parties agree that the protection, mitigation, and enhancement (PME) measures contained in this Agreement shall be implemented as provided herein and according to the principals of adaptive management. Adaptive management is an active systematic process for continually improving management policies and practices by sequential learning from the outcomes of operational programs. Adaptive management employs management programs that are designed to experimentally compare selective policies or practices by evaluating alternative hypotheses about the system being managed. The sequence of adaptive management steps include: (1) problem assessment, (2) project design, (3) implementation, (4) monitoring, (5) evaluation, and (6) adjustment of future decisions. Adaptive management is not complete until the planned management actions have been implemented, measured and evaluated and the resulting new knowledge has been fed back into the decision-making process to aid in future planning and management. The fundamental objective of adaptive management with respect to the Priest Rapids Project is to achieve the passage performance standards by 2013.

4.4 Regulatory Compliance. Whenever the implementation of this Agreement results in decisions by Grant PUD or the PRCC for Grant PUD to undertake activities that may require new authorizations or regulatory approvals by FERC or any other authority, Grant PUD shall promptly seek such authorizations or approvals as may be required under then existing law, and shall proceed with the implementation of such activities upon receipt of the necessary authorizations or approvals.

4.5 Monitoring and Evaluation Program. Grant PUD shall develop and implement, in consultation with the PRCC and subject to the approval of the Parties, monitoring and evaluation programs designed to evaluate the success of the measures in this Agreement, including applicable performance standards, as described in Appendix A to this Agreement and consistent with Section 4.3 above. This shall be accomplished for non-listed species in a manner and timeframe similar to the Performance Evaluation Program, Annual Progress and Implementation Plans, Periodic Program Evaluation Reports and Program Coordination requirements for listed species contained in Appendix A. The purpose of the program is to provide a measurable, reliable and technical basis to assess; (1) the degree to which Grant PUD is improving juvenile and adult passage survivals in accordance with the schedules and standards of this Agreement; (2) habitat productivity improvements and; (3) supplementation for the non-listed Covered Species affected by the Project as described in Sections IX-XV.

4.6 Financial Capacity. Appendix A to this Agreement requires Grant PUD to maintain the financial capacity to fulfill the requirements of the reasonable and prudent alternatives contained in the Biological Opinion. While this Agreement remains in effect, Grant PUD shall also undertake such actions as may be necessary to ensure that it will maintain the financial capacity to implement the components of this Agreement.

Grant PUD shall fulfill this requirement in the manner described in Appendix A, which requires Grant PUD to maintain ratings for the senior, long-term debt of the Priest Rapids and Wanapum Developments by one or more major credit rating companies at or above investment grade BBB- or its equivalent), or post acceptable credit support for meeting its obligations under Appendix A. If there is not at least one investment-grade rating for the bonds of the Developments, within 30 days after Grant PUD is notified that the rating(s) has been downgraded below investment grade Grant PUD shall post credit support in an amount equal to the estimated cost of implementing fish measures required by this opinion during the next 12 months. Credit support may be in the form of a line of credit with a term of at least one year and provided by a national bank or financial institution. Grant PUD shall make a good faith effort to secure a line of credit within 30 days of the notification of a downgrade and shall have a final line of credit in place no later than 60 days after the notification. Grant PUD's obligation to provide credit support shall terminate if it obtains an investment grade rating for the debt of the Developments. As long as Grant PUD is obligated to maintain credit support, the amount of the credit support to be provided shall be adjusted annually.

Part V. Priest Rapids Coordinating Committee

5.1 Establishment of Committee. The Parties agree that the coordination of the implementation of the adaptive management program contained in this Agreement shall be through the Priest Rapids Coordinating Committee (PRCC) including Hatchery, and Habitat subcommittees, which have been established by Grant PUD consistent with the requirements of Action 39 of Appendix A. The members of the PRCC shall include the Parties to this Agreement, as well as the entities (the “non-Party members”) named in Action 39 of Appendix A.

5.2 Procedures. The Parties shall establish such procedures including procedures for selection of a chair for the PRCC, which they may adjust from time to time, consistent with the terms of this Agreement as they determine will assist in the orderly, effective and efficient execution of its responsibilities. Grant PUD shall provide sufficient facilitation, administrative, and clerical support to the PRCC as agreed to by the Parties. The PRCC shall select, and Grant PUD shall fund an independent facilitator for the purpose of developing a well-functioning committee. Funding for the facilitator shall continue until the second Annual Progress and Implementation Plan has been filed with FERC, and continue for the duration of the license unless the Parties, through consensus, agree that a facilitator is no longer necessary.

5.3 Designation of Representatives. Each Party shall designate its Policy Representative, its regular representative to the PRCC and further representatives on the various subcommittees that it may establish. Non-Party members shall similarly designate representatives, as appropriate. As a general matter, the Parties intend that Directors or Managers shall likely serve as Policy Representatives; managers with day-

to-day oversight of major program areas shall serve as PRCC members; and that the senior technical staff in charge of specific program areas on a daily basis shall serve on the various technical subcommittees that the PRCC may establish.

5.4 Decision-making. Except for the implementation of the anadromous fish activities set forth in Appendix A, decisions related to the implementation of this Agreement shall be made by the Parties to this Agreement. Each Party shall designate one decision-making member for the PRCC. Except as otherwise provided in this Agreement, the Parties shall make decisions by consensus of those Parties present in person or by phone and shall develop its own rules of process. Abstention does not prevent consensus. The Chair shall make reasonable effort to contact the Parties and non-Party members in a timely manner to notify the Parties of PRCC meetings and pending decisions. If a Party cannot be present for an agenda item to be decided upon it may notify the Chair, who upon the receipt of such a request shall delay a decision on the agenda item for up to five (5) business days on the specified issues for which a delay is requested. A Party may invoke this right only once per delayed item. If the Parties cannot reach agreement upon an issue, then upon request by any Party, that issue shall be referred to Dispute Resolution as described in Part VI.

5.5 Responsibilities of the PRCC

5.5.1 Coordination and Oversight. The PRCC shall serve as a forum to coordinate the implementation of this Agreement and to consider issues that arise. This oversight and cooperation function shall not diminish the specific commitments and implementation responsibilities of individual Parties under this Agreement.

5.5.2 New Information. The PRCC shall assess new information as it becomes available through the implementation of this Agreement or otherwise, and the PRCC may from time to time recommend to FERC amendments to the new license to reflect the best available scientific information on means and measures to achieve the applicable performance standards for the Project, as described in this Agreement.

5.5.3 Research and Monitoring Coordination. The PRCC shall coordinate as appropriate the design and implementation of research and monitoring programs consistent with this Agreement. The PRCC shall coordinate these activities, the sharing of data and information, and the conduct of other activities under this Agreement with related activities associated with other hydropower operations on the Columbia River in order to promote efficiencies and the use of best available scientific information and analysis in the implementation of this Agreement, including, but not limited to, participation in studies relating to the assessment of project related juvenile and adult delayed mortality.

Part VI. Dispute Resolution

6.1 General. Disputes among the Parties arising out of the implementation of this Agreement shall initially be subject to the following dispute resolution procedures and shall be guided by the standard of care described in 4.2, above. During the implementation of this Agreement, the Parties by consensus may adjust or modify these procedures from time-to-time as may be warranted. All Parties shall be bound to apply these agreed-upon procedures (as they are currently described or as may be modified by the Parties) to disputes amongst them that arise in the implementation of this Agreement. Only Parties to this Agreement shall have the right to invoke these dispute resolution measures.

6.2 Notice and Referral. The Party raising the issue shall provide written notice of the issue and the supporting rationale to the Chair of the PRCC. Within five days of receipt of such notice, the Chair shall refer the issue to such subcommittee to whom the subject matter has been delegated the initial implementation responsibilities, if any. Provided, however, that if the Chair, in consultation with the other members of the PRCC, determines that referral of the dispute to the relevant subcommittee would not enhance the likelihood of resolution because the dispute had originated with, or had already been thoroughly explored by, that subcommittee, the Chair may exercise its discretion to defer subcommittee referral and proceed to consider the matter directly pursuant to Section 6.4, below.

6.3 Subcommittee Level. If the dispute among the Parties occurs within a subcommittee established by the PRCC to implement this Agreement (e.g. a Hatchery or a Habitat subcommittee), the following procedures apply.

6.3.1 Seek Resolution. Within sixty (60) days of receipt of notice of a dispute under Section 6.2, above, the subcommittee shall seek to agree upon a resolution of the dispute. Participants shall endeavor in good faith to reach a resolution of the dispute using the best available information.

6.3.2 Report to PRCC. At the end of the sixty (60) day period, the appropriate subcommittee shall provide a report to the Chair of the PRCC describing the outcome of its efforts under Section 6.3.1, above. The Chair shall promptly distribute the report to the members of the PRCC. The report shall describe any proposed resolution, the basis for the proposed resolution, and such additional information as may be necessary to support the proposed resolution. In the alternative, the report shall describe the remaining issues in dispute, the efforts to resolve them, and any additional information that may be suitable to assist in resolving the outstanding issues in a timely manner.

6.3.3 PRCC Final Action. Upon receipt of a report under Section 6.3.2, above, the Parties shall, within thirty (30) days (or as otherwise agreed to) approve or disapprove

the proposed resolution. In the event that it approves the proposal, the Parties will implement the resolution as accepted. In the event that the resolution requires the regulatory approval of FERC or another regulatory entity, Grant PUD, with the support of the Parties, shall seek prompt resolution by FERC or the relevant regulatory authority and shall proceed with its implementation upon receipt of the required approval.

6.4 PRCC Original Action. In the event that the Chair refers a disputed issue to the full PRCC, or a subcommittee is unable to resolve a dispute referred to it, the Parties shall have (90) days to seek agreement on the disputed matter. The Parties may elect to extend the time period for resolving the matter as it may judge appropriate prior to the referral of an issue to the Policy Representatives of the Parties, as described below.

6.5 Convening the Policy Representatives. In the event that the Parties fail to agree to a resolution of a disputed issue, the Chair shall within five (5) days notify the Policy Representative of each Party of the existence of the continuing dispute and to request that they convene to resolve the dispute. The Policy Representatives shall have sixty (60) days from the receipt of such notice to resolve the dispute. This period may be extended by consensus of the Policy Representatives.

6.6 Final Action. If, by the end of the sixty (60) day period (or the period otherwise agreed to), the Policy Representatives have not resolved the dispute, any Party may withdraw and/or petition FERC or other appropriate regulatory authorities with responsibility over the matter to resolve the issue as may be appropriate under existing law.

6.7 Hanford Reach Fall Chinook Protection Program Agreement. Consistent with Section 2.7, above, disputes arising under the implementation or interpretation of the Hanford Reach Fall Chinook Protection Program Agreement shall be governed by the terms of that agreement.

Appendix A to the Salmon and Steelhead Settlement Agreement

- Action 1: Performance Standards. Grant PUD shall make steady progress towards achieving a minimum 91% combined adult and juvenile salmonid survival performance standard at the Priest Rapids and Wanapum Developments (i.e., each dam), and shall have passage measures in place, as specified in actions comprising this RPA, that are expected to achieve this performance standard by 2010. The 91% standard includes a 93% project-level (reservoir and dam) juvenile performance standard. NOAA Fisheries recognizes that it is not currently possible to measure the 91% combined adult and juvenile survival standard. To address this issue, Grant PUD is directed to use dam and reservoir smolt survival studies to evaluate progress towards meeting 95% juvenile dam passage survival and 93% juvenile project passage survival. Upon issuance of this Biological Opinion, Grant PUD shall develop and begin implementation, with steady progress, a plan to achieve the 93% juvenile project passage survival standard by 2010, and shall have measured survival for UCR spring Chinook salmon and UCR steelhead by 2013, as specified below. The performance standard can also be accomplished as a composite; Grant PUD can compensate for a failure to achieve the performance standard at one of its developments by exceeding the performance standard at the other development (i.e. at a minimum, by the same percentage amount below the survival performance standard at the development failing to meet performance standards). If at-project survival exceeds the minimum combined adult juvenile and adult performance standard specified above, as measured per the specifications listed below, off-site mitigation obligations can be reduced by a commensurate amount.
- Action 2: Downstream Passage Alternatives Action Plan. FERC shall require that Grant PUD, in coordination with the PRCC, develop and annually revise a Downstream Passage Alternatives Action Plan (DPAAP) designed to contribute to the achievement of applicable performance standards for the Project over time. The DPAAP shall be approved by NOAA Fisheries and shall consist of the implementation and testing of capital measures designed to improve juvenile survivals at the Wanapum development, as well as the implementation and testing of alternative operational measures outlined in the actions that follow. The objective of these capital or operational modifications shall be to improve juvenile passage survivals while remaining within TDG limits.

At the conclusion of the implementation and testing of Actions 3-10 below, Grant PUD, in coordination with the PRCC and with NOAA Fisheries-approval, will update its DPAAP to identify the combination of measures

that results in the greatest survival. Additionally, the plan will identify other prospective high priority research and development to further improve survivals, where necessary.

Action 3: Top Spill through Future Units. As part of the first phase of the DPAAP described above, FERC shall require that Grant PUD design, construct and test downstream passage through a prototype top-spill unit in a vacant bay of the future units section of Wanapum dam (future unit top spill). The specific measures and bypass flows will be developed through a design process conducted by Grant PUD in consultation with the PRCC and approved by NOAA Fisheries.

Prior to the testing and construction of the prototype future unit top spill, Grant PUD shall, in consultation with the PRCC, prepare and submit to NOAA Fisheries detailed design and engineering plans and schedules for its review and approval. This schedule shall include conducting hydraulic modeling of the prototype future unit top-spill device and completing the design work for the prototype within the first year after issuance of this opinion. Subject to confirmation in the approved schedule, Grant PUD shall award the construction contract within 2 years of issuance of the opinion and commence construction of the prototype promptly thereafter. Biological testing shall begin during the 2007 outmigration, followed by additional testing or the completion of the unit, as may be appropriate.

The design of the future unit top spill will provide at least an approximate 20,000 cubic feet per second (cfs) discharge from the forebay for the purpose of juvenile fish bypass. The installation of the future unit top spill will include a *transition chute* that will allow bypass flow to be introduced into the tailrace in the optimal configuration (as determined by hydraulic model testing) to provide improved juvenile fish egress from the tailrace and to minimize TDG uptake or de-gas bypass flow. Biological testing will include evaluation of forebay migration through the use of radio telemetry or acoustic tags and survival tests utilizing PIT tags. Additional passage measures may be required if biological testing shows that performance standards are not being met (Action 1). Biological study plans will be developed in coordination with the PRCC and approved by NOAA Fisheries. This schedule can be modified through consultation with the PRCC and with the concurrence of NOAA Fisheries.

Action 4: Advanced Turbines. As a second component of its DPAAP described above, Grant PUD shall, within 90 days of the issuance of this biological opinion, file an application with FERC for an amendment to its license to replace the ten turbines at its Wanapum development with ten new

advanced turbines, as developed by the Department of Energy's Advanced Hydro Turbine Program. Subject to the approval of the application by FERC, Grant PUD shall first install a single advanced turbine unit beginning in 2004 and evaluate its ability to meet criteria developed in consultation by the PRCC and approved by NOAA Fisheries. Grant PUD shall, prior to installation, develop an appropriate scientific protocol for evaluating the physical and biological performance of this advanced turbine in consultation with the PRCC and approved by NOAA Fisheries. Grant PUD shall implement such protocols in 2005 and coordinate the evaluation of the performance of the test unit with the PRCC. If the results demonstrate that the advanced turbine unit will achieve juvenile passage survivals that are equivalent to or better than the survivals through the existing turbine units and is otherwise achieving applicable operating criteria, Grant PUD shall develop a schedule for implementation of the remaining nine units and, subject to the approval of NOAA Fisheries and in consultation with the PRCC, shall proceed to install the remaining units accordingly.

Action 5: Spill: Subject to the identification of better measures to improve downstream survivals through the implementation of Actions 2 through 4, FERC shall require Grant PUD to implement a spill level of 43% of average daily total river flow, or TDG limits, whichever is less, for spring migrants. This spill level will remain in effect for spring migrants until a better downstream passage alternative is identified, tested and approved by NOAA Fisheries, in consultation with the PRCC. This spill level will be in effect for 95% of the spring migrants passing Wanapum Dam as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin annually on or before April 1. In consultation with the PRCC and approval by NOAA Fisheries, Grant PUD may reduce spill as necessary to remain at or under TDG limits. Implementation and in-season management of spill shall be conducted as described in Section 3.2.1.2. Grant PUD, in consultation with the PRCC and subject to approval by NOAA Fisheries, may replace interim spill at Wanapum Dam if more biologically efficient and effective measures are designed, tested and implemented.

Action 6: Alternative Spill Measures. While construction takes place on the downstream passage alternatives, FERC shall allow Grant PUD to evaluate further modifications to the spill regime currently in place (spill occurs during the out-migration up to the TDG limits or 43% of total river flow, whichever is less) to evaluate potential improvements in juvenile survival. The evaluation will be based upon the best available route-specific and dam passage survival monitoring and testing information from previous

evaluations. The evaluation may include the use of top spill or other passage routes as alternatives to standard tainter gate or sluiceway spill to improve downstream survivals within applicable TDG limits. Such study proposal(s) shall be developed in consultation with the PRCC and subject to NOAA Fisheries approval, and studies shall be implemented in consultation with NOAA Fisheries and the PRCC. FERC shall require Grant PUD to report on the results annually, as provided in Action 31. Implementation and in-season management of spill shall be conducted as described in Section 3.1.1.2. This spill level will be in effect for 95% of the spring migrants passing Priest Rapids Dam as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin on or before April 1. If testing indicates that equivalent or higher project survival can be achieved via alternative spill measures as compared to the current spill regime utilized during the spring out-migration, FERC shall require that the alternative spill measures be utilized by Grant PUD for the downstream passage of listed species until replaced by a permanent downstream passage program that achieves the project survival standards for juveniles as specified in Action 1. If testing indicates that equivalent or higher project juvenile survival cannot be achieved via alternative spill measures as compared to the current spill regime utilized during the spring out-migration, FERC shall require spill amount up to the TDG limits or 43% during a minimum of 95% of the spring out-migration of ESA listed species, until biological testing indicates that other passage measures are sufficient to meet project survival standards indicated in Action 1.

- Action 7: Alternative Spill Patterns. While testing alternative spill measures, FERC shall also require Grant PUD to investigate changes to the spill patterns at Wanapum Dam in order to explore methods to improve juvenile survival through the spillway. Any changes to the spill pattern shall be implemented only after consultation with the PRCC and subject to approval by NOAA Fisheries.
- Action 8: Total Dissolved Gas Abatement. FERC shall require Grant PUD to continue to implement the 2000 TDG Abatement Plan and coordinate any changes to the plan with NOAA Fisheries and the PRCC, subject to approval by the Washington State Department of Ecology and by NOAA Fisheries. Implementation and in-season management of spill and water quality monitoring shall be conducted as described in Section 3.1.1.3 unless modified in consultation with NOAA Fisheries and the PRCC.
- Action 9: Turbine Operations. While construction takes place on the downstream passage alternatives, FERC shall require Grant PUD to promptly reassess

operation of the existing turbines at Wanapum Dam in order to optimize juvenile survival through the turbines. Grant PUD shall coordinate study proposals with NOAA Fisheries and the PRCC. Any subsequent changes to turbine operations to improve survival will require approval from NOAA Fisheries and consultation with the PRCC.

Action 10: Avian Predator Control. FERC shall require Grant PUD to continue to develop and fund an overall programmatic approach to the reduction of avian-related mortalities to salmon populations affected by the Priest Rapids Project. The Avian Predator Control Program shall articulate the goals and objectives of the program; the measures to be undertaken by Grant PUD to achieve those goals and objectives, and the methods by which the success of those measures will be evaluated from time to time as determined by the PRCC and with concurrence by NOAA Fisheries.

As part of this Program, Grant PUD shall maintain in good condition wires across the Wanapum powerhouse tailrace area in order to discourage feeding behavior by avian predators. FERC shall also require Grant PUD to evaluate the feasibility of installing additional wire arrays across the spillway tailrace areas by the end of the first year following issuance of this biological opinion. If NOAA Fisheries determines that wire installation is feasible, and regulatory approvals are granted, Grant PUD shall install wires across the spillway tailrace area before the 2006 juvenile fish passage season begins.

Action 11: Northern Pikeminnow Removal Program. FERC shall require that Grant PUD continue to develop and annually fund an overall programmatic approach to the reduction of juvenile salmon mortality associated with predation by the Northern Pikeminnow in the area of the Priest Rapids Project. This Northern Pikeminnow Removal Program shall articulate its goals and objectives; the measures to be undertaken by Grant PUD to achieve those goals and objectives, and the monitoring and evaluations, consistent with other means and measures undertaken by Grant PUD to improve juvenile passage survivals as developed pursuant to Action 2, above. This Program shall be developed in consultation with the PRCC and approved by NMFS.

Action 12: Downstream Passage Alternatives Action Plan. As part of Action 2, above, FERC shall require that Grant PUD complete and annually revise a DPAAP which addresses the testing, evaluation and implementation of both capital and operational modifications at the Priest Rapids Dam and their expected effect on achieving the applicable performance standards for the Project. These capital or operational modifications shall improve juvenile passage

survivals while remaining within applicable TDG limits. Priest Rapids Dam passage improvements are of lower priority than Wanapum Dam passage improvements, because recent evaluations of the current spill program indicates higher project survival at Priest Rapids Dam than at Wanapum Dam under existing facilities and operations (although performance standards have not been met).

- Action 13: Alternative Top Spill Concepts. As part of the first phase of the DPAAP above, FERC shall require that Grant PUD focus the specific designs upon alternative application of top spill concepts. Preliminary testing in 2002 and further testing in 2003 suggest that modification of tainter gates and possible use of full-open tainter gate configurations may provide high fish passage efficiencies and survivals. Prior to testing and construction, Grant PUD shall, in consultation with the PRCC, prepare and submit to NOAA Fisheries detailed design and engineering plans and schedules for its review and approval. The results of these tests will be used to further develop a longer-term downstream passage program for the Priest Rapids dam. Priest Rapids Dam passage improvements are of lower priority than Wanapum Dam passage improvements, because evaluation of the current spill program indicates higher project survival at Priest Rapids Dam than at Wanapum Dam.
- Action 14: Alternative Spill Measures. Prior to construction of the long-term capital improvements identified in Action 12, FERC shall allow Grant PUD to evaluate further modifications to the spill regime at the dam to evaluate potential improvements in juvenile survivals. FERC shall require that Grant PUD develop annual study plans for these evaluations. The studies shall be designed to evaluate possible alternatives to spill that may result in survival improvements over the basic spill program identified under Action 15, below. Such study proposals shall be developed in consultation with the PRCC and subject to NOAA Fisheries approval. FERC shall require Grant PUD to report on the results annually, as provided in Action 32. In-season management of spill shall be conducted as described in Section 3.2.1.2. Priest Rapids Dam passage improvements are of lower priority than Wanapum Dam passage improvements, because evaluation of the current spill program indicates higher project survival at Priest Rapids Dam than at Wanapum Dam.
- Action 15: Alternative Spill Patterns. While testing other spill alternatives, FERC shall also require Grant PUD to investigate changes to the spill pattern at Priest Rapids Dam in order to explore methods to improve juvenile survival through the spillway. Any changes to the spill pattern shall be implemented only after consultation with the PRCC and subject to approval by NOAA

Fisheries. Priest Rapids Dam passage improvements are of lower priority than Wanapum Dam passage improvements, because evaluation of the current spill program indicates higher project survival at Priest Rapids Dam than at Wanapum Dam.

- Action 16: Spill. Subject to the identification of better measures to improve downstream survivals through the implementation of Actions 12 through 14, FERC shall require Grant PUD to implement a spill level of 61% of average daily total river flow, or TDG limits, whichever is less, for spring migrants. This spill level will remain in effect for spring migrants until a better downstream passage alternative is identified, tested and approved by NOAA Fisheries, in consultation with the PRCC. This spill level will be in effect for 95% of the spring migrants passing Priest Rapids Dam as determined by in-season monitoring at Rock Island Dam or June 15, whichever is earlier, with monitoring of the downstream migration to begin annually on or before April 1. With consultation with the PRCC and approval by NOAA Fisheries, Grant PUD may reduce spill as necessary to remain at or under the TDG limits. Implementation and in-season management of spill shall be conducted as described in Section 3.2.1.2. Grant PUD, in consultation with the PRCC and with approval by NOAA Fisheries, may replace interim spill at the Priest Rapids Development if more biologically efficient and effective measures are designed, tested and implemented.
- Action 17: Total Dissolved Gas Abatement. In coordination with Action 12, FERC shall require Grant PUD to investigate alternatives for reducing TDG production in the Priest Rapids spillway. Results of the 2003 monitoring program shall be provided to NOAA Fisheries and the PRCC during the winter of 2004, or as soon as they are available, for discussion regarding possible alternatives for reducing TDG. In addition, development of fish passage alternatives at Priest Rapids Dam shall use the current 120% tailrace TDG limit as a design criterion. If NOAA Fisheries, in consultation with the PRCC, determines that gas abatement measures are warranted, study and design shall commence promptly (i.e., by 2005). Implementation and in-season management of spill shall be conducted as described in Section 3.2.1.3.
- Action 18: Turbine Operations. FERC shall require Grant PUD to conduct research, beginning within 1 year of issuance of this opinion, to improve turbine survival at Priest Rapids Dam. Research proposals shall be reviewed and approved by NOAA Fisheries, in consultation with the PRCC before commencing. Biological testing shall begin in early spring of the year following the issuance of this opinion and prior to the onset of the spring

migration season. Research results and subsequent turbine operation plans shall be reviewed and approved by NOAA Fisheries in consultation with the PRCC. FERC shall make every reasonable effort to ensure that improved turbine operations shall begin by the 2005 spring migration season. Until a new operation plan is in place, FERC shall ensure that the Priest Rapids turbines are operated in a non-cavitation mode.

- Action 19: Avian Predator Control. In conjunction with the Avian Predator Control Program developed and implemented pursuant to Action 10, above, FERC shall require Grant PUD to maintain in good condition wires across the Priest Rapids powerhouse tailrace area in order to discourage feeding behavior by avian predators. FERC shall require Grant PUD to determine the feasibility of wire installation across the Priest Rapids spillway tailrace area. The feasibility study shall be developed and conducted in consultation with and subject to approval by NOAA Fisheries, by the end of the first year following issuance of this biological opinion. If NOAA Fisheries determines that wire installation is feasible, and regulatory approvals are granted, Grant PUD shall install wires across the spillway tailrace area before the following juvenile fish passage season begins.
- Action 20: Northern Pikeminnow Removal. As a component of the Northern Pikeminnow Predator Reduction Program developed pursuant to Action 10, above, Grant PUD shall continue to fund throughout the term of this biological opinion a Northern Pikeminnow removal program, and shall in consultation with the PRCC develop and implement a monitoring and evaluation program to evaluate its effectiveness.
- Action 21: Adult PIT Tag Detection. Priest Rapids Dam. FERC shall require Grant PUD to continue to operate and maintain PIT tag detection capability in the right and left bank fishways at Priest Rapids Dam.
- Action 22: Priest Rapids Adult Trap. FERC shall require Grant PUD to complete the design of an off-ladder adult trap in the left bank fishway at Priest Rapids Dam within 1 year of issuance of this opinion. Design scoping shall commence within 90 days of this biological opinion with a prompt construction schedule that will be developed in consultation with the PRCC and approved by NOAA Fisheries. Grant PUD, in coordination with the PRCC, may seek agreement on sharing the costs of constructing this facility with the Northwest Power Planning Council and other regional sources. Grant PUD shall construct the left bank fishway off-ladder trap within 3 years of issuance of this opinion, after consultation with the PRCC, and subject to NOAA Fisheries approval of the design, regardless of funding commitments from other entities.

- Action 23: Priest Rapids Project Adult Fishway Improvements. FERC shall require Grant PUD to investigate methods for improving hydraulic conditions in the Priest Rapids project fishway collection channel, junction pool and entrance pools. Assessment shall begin within 6 months of issuance of this biological opinion and if feasible, improvements implemented during the following season's ladder outage period. Schedule, design and implementation shall be undertaken in consultation with the PRCC and subject to NOAA Fisheries-approval.
- Action 24: Adult Fish Counting. FERC shall require Grant PUD to develop video monitoring capability for counting adults migrating through the right and left bank fishways at Priest Rapids and Wanapum Dams. Video counting shall be in operation by 2006 at both dams, and reports submitted for inclusion in regional databases. The horizontal counting board at Priest Rapids Dam shall be removed once the video counting equipment is operational.
- Action 25: Adult Steelhead Downstream Passage. FERC shall require Grant PUD to operate project sluiceways at both dams continually from the end of summer spill until November 15 to provide a safer passage route for adult steelhead fallbacks. If in-season monitoring indicates that these timeframes could be modified to improve adult downstream fish passage, FERC shall require Grant PUD to discuss in-season study results with the PRCC, and upon approval by NOAA Fisheries modify the time frame for operating project sluiceways.
- Action 26: Hatchery Subcommittee. Within 6 months of issuance of this opinion, Grant PUD shall convene a Hatchery Subcommittee of the PRCC to undertake and oversee the planning and implementation of the programs described in Actions 27-29. Grant shall complete an Artificial Propagation Plan¹⁹⁸ for UCR spring-run Chinook salmon and UCR steelhead. Grant PUD shall periodically assess modifications in these program plans with the approval of NOAA Fisheries and in consultation with the PRCC at intervals as described in Actions 26 and 27 or as otherwise agreed to by the Subcommittee.

¹⁹⁸The Artificial Propagation Plan can take the form of a Hatchery and Genetic Management Plan.

- Action 27: UCR Steelhead Supplementation Plan. FERC shall require Grant PUD to complete, in consultation with the PRCC and subject to NOAA Fisheries approval an Artificial Propagation Plan to rear and release up to 100,000 yearling UCR steelhead for release in the UCR basin. The plan shall be consistent with recovery criteria for UCR steelhead and other artificial propagation programs. If new facilities are determined to be warranted for the implementation of this plan, then they shall be constructed to rear a minimum of the production level of this plan plus 10%. A comprehensive monitoring and evaluation program shall be included in the plan that includes monitoring in the natural environment. The monitoring and evaluation program may be implemented in conjunction with ongoing or future monitoring and evaluation programs with other entities such as Chelan and Douglas County PUDs through cost sharing agreements external to this biological opinion.
- Action 28: UCR Spring-run Chinook Salmon. FERC shall require Grant PUD to complete, in consultation with the PRCC and subject to NOAA Fisheries approval, an Artificial Propagation Plan to rear and release up to 600,000 yearling UCR spring Chinook for release in the UCR basin. The plan shall be consistent with UCR spring Chinook salmon recovery criteria and other UCR spring Chinook salmon artificial propagation programs. New facilities are anticipated to be necessary for this program and shall be constructed to rear a minimum of the production level plus 10%. A comprehensive monitoring and evaluation program shall be included in the plan that includes monitoring in the natural environment. The monitoring and evaluation program may be implemented in conjunction with ongoing or future monitoring and evaluation programs with other entities such as Chelan and Douglas County PUDs through cost sharing agreements external to this biological opinion.

The Artificial Propagation Plan shall address land, water, and facility development, identify goals and objectives, and provide for coordination with similar programs undertaken by Chelan and Douglas PUDs. The Artificial Propagation Plan shall include a schedule for prompt and steady implementation progress so as to have the necessary facilities available to commence production within 7 years of issuance of this opinion. The plan shall be developed within 1 year of the date of the issuance of this opinion. It shall seek to complete site evaluations and selections within 18 months of plan approval; facility design, permitting and contracting within 2 years of site approvals; and facility construction within 2 years following permit

- approvals.¹⁹⁹
- Action 29: White River Spring-Run Chinook Program. Consistent with Action 28 above, FERC shall require that immediately upon issuance of this biological opinion, Grant PUD shall begin funding and otherwise supporting implementation of the White River spring-run Chinook salmon captive brood program. This shall include, but is not limited to, the development of permanent rearing and acclimation facilities. This program shall be implemented to reach a yearling smolt production level of up to 250,000 fish, provided the spring-run Chinook salmon program total production is 600,000. The Hatchery Subcommittee shall develop a phased implementation schedule for the continuation of this program. The phased approach to the work shall include deadlines for site identification, facility design, HGMP approval, the obtaining of necessary regulatory approvals and the commencement of construction. The design of the required facilities should factor in a 10% increase in production capacity beyond the production levels required above.
- Action 30: Nason Creek Spring-run Chinook Program. Consistent with Action 28 above, FERC shall require that immediately upon issuance of this biological opinion, Grant PUD begin supporting, through funding of permanent rearing and acclimation facilities, and by other means which support the implementation of artificial propagation of spring-run Chinook salmon in Nason Creek. At this time, the development of an adult trapping facility and juvenile acclimation site to rear 250,000 yearling smolts, provided the spring-run Chinook salmon program total production is 600,000, on Nason Creek is warranted. The Hatchery Subcommittee shall develop a phased implementation schedule for these actions. The phased approach to the work shall include deadlines for site identification, facility design, the obtaining of necessary regulatory approvals and the commencement of construction. The design of the required facilities should factor in a 10% increase in production capacity beyond the production levels required above.

¹⁹⁹This schedule assumes that existing information on candidate sites is sufficient to support site selection; that the preferred sites have readily available water rights to support the proposed facility; and that the PRCC and its Hatchery Subcommittee meet regularly to ensure prompt approvals and active support for permitting the new facilities. The individual milestones in this schedule are subject to adjustments by the PRCC as the Plan is developed.

- Action 31: Methow River Basin Spring-run Chinook Program. Consistent with Action 28 above, FERC shall require that immediately upon issuance of this biological opinion, Grant PUD shall begin funding and otherwise supporting the implementation of artificial propagation of spring-run Chinook salmon in the Methow River basin. This shall include, but is not limited to, development of permanent rearing and acclimation facilities. At this time, potential improvement of existing facilities in the Methow Basin owned by Douglas PUD should be explored as one avenue for Grant PUD to contribute to the recovery of UCR spring Chinook salmon at a production level of up to 200,000 yearling smolts, provided the spring-run Chinook salmon program total production is 600,000.
- Action 32: Habitat Subcommittee. Within 6 months of the date of this opinion, Grant PVD shall convene a Habitat Subcommittee of the PRCC to undertake and oversee the planning and implementation of the necessary program elements to support habitat protection and restoration programs.
- Action 33: Habitat Plan. FERC shall require Grant PUD to develop, in consultation with the PRCC, a Habitat Plan, subject to NOAA Fisheries-approval, designed to shepherd the development and implementation of spring Chinook salmon and steelhead habitat protection and restoration. The Habitat Plan shall provide for coordination with other similar programs such as those undertaken by Chelan and Douglas PUDs. At a minimum, the Habitat Plan shall identify goals, objectives, a process for coordination, and a process by which habitat projects may be identified and implemented. The Habitat Plan shall give a priority to restoring habitat functions important to listed stocks and other anadromous species in drainages occupied by UCR steel head and UCR spring Chinook affected by the Priest Rapids Project. The Habitat Plan shall give priority to projects that can be implemented prior to 2010 with the available funding in order to provide maximum benefit to ESA-listed species during the term of this RPA. The purpose of the Habitat Plan is to establish and shepherd a habitat restoration program that promotes the rebuilding of self-sustaining and harvestable populations of UCR spring Chinook salmon and steel head, and to mitigate for a portion of unavoidable losses resulting from Project operations. The Habitat Plan shall be developed within one year of the date of this opinion, and shall be revised from time to time as appropriate.
- Action 34: Habitat Account. FERC shall require Grant PUD to establish within 1 year of the date of this opinion a Priest Rapids Habitat Conservation Account in accordance with applicable requirements of Washington State law. Funds in the account shall be made available by Grant PUD to finance tributary or main-stem habitat projects. The amount of funds provided to the account

annually shall be \$288,600 (specified in 2003 dollars - annually adjusted per US Dept of Labor, Bureau of Labor Statistics CPI for Western Region).

- Action 35: Performance Evaluation Program Development. FERC shall require Grant PUD to develop, within 1 year of the date of this opinion, an overall Performance Evaluation Program for the Project. The purpose of the program will be to provide a reliable technical basis to assess the degree to which Grant PUD is improving juvenile and adult passage survivals; habitat productivity improvements and supplementation for the listed anadromous fishery resources affected by the Project as described in this RPA. Where appropriate, the Performance Evaluation Program shall measure and evaluate individual actions within each category; assess the contribution of the action to the desired objective, and provide a basis for identifying new options and priorities among those, options for further progress in meeting objectives. This Performance Evaluation Program shall consist of annual progress and implementation reports and periodic performance evaluations to assess overall performance in meeting the survival standards described in this RPA. Grant PUD shall develop this Performance Evaluation Program in consultation with the PRCC and shall submit it to NOAA Fisheries for review and approval.
- Action 36: Annual Progress & Implementation Plans. Within 1 year of the date of this opinion and annually thereafter, FERC shall require that Grant PUD produce annual Progress and Implementation Plans that describe the implementation activities for the actions required in this RPA. These Plans will report on the status of the actions required by this RPA undertaken by Grant PUD during each calendar year and the anticipated schedule of future actions and studies in the next planning period in the areas of juvenile and adult passage, habitat, and supplementation. The Progress and Implementation Plans will also report the results of monitoring, modeling or other analyses that take place in the calendar year to evaluate the degree to which the actions are likely to improve juvenile and adult survivals. The Progress and Implementation Plans will also provide an annual plan for the operation, inspection and maintenance of all juvenile and adult fishways at both Priest Rapids and Wanapum dams. Grant PUD shall provide these Progress and Implementation Plans to NOAA Fisheries and the PRCC by no later than February 15th of each year to assist in systems operational planning for that year.
- Action 37: Periodic Program Evaluation Reports. At 3-year intervals or as otherwise provided for in the approved Performance Evaluation Program developed pursuant to Action 35, above, Grant PUD shall prepare and submit to the PRCC a Performance Evaluation Report that will assess the ability of each

program element to meet its program objectives and contribute to the overall achievement of the performance standards in Action 1 above. As may be provided in the approved Performance Evaluation Program, Grant PUD may incorporate independent peer review by recognized experts, as approved by the PRCC, as it evaluates alternative fish passage survival improvements.

Action 38: Program Coordination. FERC shall require that Grant PUD coordinate the design of its Performance Evaluation Program with the development of relevant parallel monitoring or evaluation systems by other hydropower operators in the Columbia Basin and the Northwest Power Planning Council. The purpose of such coordination shall be to promote technical consistency and compatibility among these efforts in order to contribute to a comprehensive evaluation of stock performances throughout the Columbia Basin. This coordination shall also promote the use of the best available science and shall provide opportunities for efficient sharing of monitoring activities, data management systems, analytical modeling and other activities.

Action 39: Priest Rapids Coordinating; Committee: Grant PUD shall establish and convene a Priest Rapids Coordinating Committee (PRCC) comprised of NOAA Fisheries, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Confederated Tribes of the Colville Reservation, Yakama Nation, Confederated Tribes of the Umatilla Reservation, and Grant PUD. The PRCC shall oversee the implementation of the anadromous fish activities associated with the Priest Rapids Project, including the requirements of this opinion. Among other things, it shall approve or modify annual Progress & Implementation Plans; approve or modify the Performance Evaluation Program; review Performance Evaluation Reports; advocate decisions of the Committee in all relevant regulatory forums; establish such subcommittees as it deems useful (in addition to the Habitat and Hatchery Subcommittees required above); resolve disputes elevated from subcommittees; and conduct other business as may be appropriate for the efficient and effective implementation of these measures.

Action 40: Financial Capacity. Grant PUD shall undertake such actions as may be necessary to ensure that it will maintain the financial capacity to fulfill its fishery obligations under law, including the programs and measures required by this opinion. Grant PUD undertakes financial forecasting over a decadal period every year to ensure the ability to meet financial obligations for implementing fish measures, honoring power purchase contractual obligations, making debt service payments and the like. Grant PUD shall include in its financial forecast the projected cost of fully implementing all

of its fishery obligations under existing law, including this opinion and any new license obligations. Consistent with its new power sale contracts, Grant PUD shall allocate annually to each Power Purchaser equal to their proportional share, annual power costs, which include operating expenses and debt service requirements. This recouping mechanism will ensure that Grant PUD will have adequate funds to cover its power costs. Grant PUD shall also maintain senior, enhanced debt ratings by one or more major credit rating companies at or above investment grade (BBB- or its equivalent). If there is not at least one investment grade rating for bonds for the Developments, within thirty days after Grant PUD is notified that the ratings for the Developments have been downgraded below investment grade, Grant PUD shall make a good faith effort to secure a line of credit in an amount equal to the estimated cost of implementing the fish measures required by this Opinion during the next twelve months. Grant PUD shall have a final line of credit in place no later than 60 days after receiving the notification. Credit support may be in the form of a line of credit with a term of at least one year and provided by a national bank or financial institution. Grant PUD's obligation to provide credit support shall terminate if it obtains an investment grade rating for the debt of the Developments. As long as Grant PUD is obligated to maintain credit support, the amount of the credit support to be provided shall be adjusted annually.

APPENDIX F

The Hanford Reach Fall Chinook Protection Program Agreement Terms and Conditions

A. DEFINITIONS

"BPA's Friday Priest Rapids Outflow Estimates" - estimate of Priest Rapids Outflow for Saturday and Sunday provided by BPA on Friday afternoon based on expected operations at Chief Joseph Dam plus Side Inflows.

"Chief Joseph" - the Chief Joseph Dam located on the Columbia River System.

"Chief Joseph Uncoordinated Request" - the generation request which BPA determines is the desired output in megawatts of Chief Joseph at any time. Through the operation of Mid-Columbia Hourly Coordination, the Chief Joseph actual generation may be higher or lower than the Chief Joseph Uncoordinated Request. At any time, Chief Joseph Uncoordinated Request plus Chief Joseph bias must equal Chief Joseph actual generation.

"Corps of Engineers" - the United States Army Corps of Engineers.

"Critical Elevation" - the elevation on Vernita Bar at which the Protection Level Flow will be established as provided in subsection C.6.

"Critical Runoff Volume" - the volume of runoff for the January through July period at Grand Coulee for the year 1929 (42.6 million acre feet).

"Daylight Hours" - the time period from one hour before sunrise to sunset at Priest Rapids Dam.

"Emergence" - the point at which the water over eggs in Redds at Vernita Bar or other areas designated in Exhibit A have accumulated 1,000 (°C) Temperature Units after the Initiation of Spawning.

"Emergence Period" - the time period beginning with Emergence and continuing thereafter until 1,000 (°C) Temperature Units have been accumulated at Vernita Bar after the end of the Spawning Period.

"Hanford Reach" - an approximately 50-mile long section of the Columbia River extending from downstream of Priest Rapids Dam to just north of Richland, WA.

"Hatching" - the point at which the water over eggs in redds at Vernita Bar has accumulated 500 (°C) Temperature Units after the Initiation of Spawning.

"Holiday" - means any day designated as a national holiday in the Northwest Power Pool accounting procedures.

"Initiation of Spawning" - the Wednesday before the weekend on which the Monitoring Team first identifies five (5) or more Redds pursuant to subsection C.6. Separate dates for Initiation of Spawning will be set for the 36-50 kcfs zone and for the zone above 50 kcfs within areas identified in Exhibit A and in areas of the Hanford Reach below the 36 kcfs level and/or outside the area specified in Exhibit A.

"kcfs" - thousand cubic feet per second.

"kcfs elevation" - the level along Vernita Bar reached by a specific rate of flow measured in kcfs.

"kcfs zone" - the area inundated by a specific rate of flow past Vernita Bar as measured in kcfs.

"kcfsh" - volume of water in thousand cubic feet per second hours.

"Mid-Columbia Hourly Coordination" - the operation of Grand Coulee, Chief Joseph, Wells, Rocky Reach, Rock Island, Wanapum, and Priest Rapids pursuant to the "Agreement For The Hourly Coordination Of Projects On The Mid-Columbia River", effective July 1, 1997 through June 30, 2017, as such may be amended, extended, or replaced.

"Monitoring Team" - a group of three individuals composed of one fishery biologist designated by each of the following: (1) Grant PUD; (2) Washington Department of Fish and Wildlife; and (3) a signatory fishery agency or tribe.

"Post-Hatch Period" - the time period between Hatching and Emergence.

"Pre-Hatch Period" - the time period between the Initiation of Spawning and Hatching.

"Previous Day's Average Weekday Wanapum Inflow" - the total volume of water discharged into the Wanapum development measured as a daily average discharge from Rock Island Dam. This measure is used from Monday to Friday to determine the allowable flow fluctuation during the Rearing Period and will be calculated based on data available to Grant that is reported on the Corps of Engineers website [<http://nwd-wc.usace.army.mil/report/projdata.htm>].

"Priest Rapids Project" - the Priest Rapids and Wanapum hydroelectric developments located on the Columbia River System.

"Priest Rapids" - the Priest Rapids Dam located on the Columbia River System.

"Priest Rapids Outflow" - the total volume of water discharged by Priest Rapids in any hour from all sources, measured in kcfs. For the purposes of the Spawning Period, Pre-Hatch Period, Post-Hatch Period and Emergence Periods, Priest Rapids Outflow shall be measured at the USGS station below Priest Rapids when possible. When USGS station data are not available and for the purposes of the Rearing Period, it will be calculated at Priest Rapids based on data available to Grant that are reported on the Corps of Engineers website [<http://www.nwd-wc.usace.army.mil/report/projdata.htm>].

"Priest Rapids Weekday Outflow Delta" - this is the difference between minimum Priest Rapids Outflow and maximum Priest Rapids Outflow over a 24 hr period beginning at 0001 hrs and extending to 2400 hrs. Priest Rapids Weekday Outflow Delta will be calculated at Priest Rapids based on data available to Grant that are reported on the Corps of Engineers Website [<http://www.nwd.wc.usace.army.mil/report/projdata.htm>].

"Priest Rapids Weekend Outflow Delta" - this is the difference between minimum Priest Rapids Outflow and maximum Priest Rapids Outflow over a 48-hr period beginning at 0001 hrs on Saturday morning and extending to 2400 hrs on Sunday night. Priest Rapids Weekend Outflow Delta will be calculated at Priest Rapids based on data available to Grant that is reported on the Corps of Engineers website [<http://www.nwd-wc.usace.army.mil/report/projdata.htm>].

"Protection Level Flow" - the amount of water flowing over Vernita Bar which is needed to provide protection to Redds as specified in subsections C.2 through C.4 of this Agreement.

"Rearing Period" - the time period beginning with the start of the Emergence Period and continuing thereafter until 400 (°C) Temperature Units have been accumulated at Vernita Bar after the end of the Emergence Period.

"Redds" - defined area of riverbed material containing salmon eggs.

"Reverse Load Factoring" - the intentional reduction of power generation during Daylight Hours and the corresponding increase in power generation during hours of darkness for the purpose of influencing the location of Redds on Vernita Bar. Reverse Load Factoring does not include spilling at night to allow lower daytime flows.

"Rocky Reach" - the Rocky Reach Dam located on the Columbia River System.

"Side Inflows" - the algebraic sum of the flow rates of water entering or leaving the Columbia River from all sources between Chief Joseph and Priest Rapids as calculated by the method presently specified by Mid-Columbia Hourly Coordination.

"Spawning Period" - the time period beginning with the Initiation of Spawning and continuing until 2400 hours on the last Sunday prior to Thanksgiving.

"Temperature Unit" - one degree Celsius of water temperature above freezing (0°C) for 24 hours.

"Vernita Bar" - the gravel bar located in the Columbia River approximately four miles downstream from Priest Rapids.

"Wanapum" - the Wanapum Dam located on the Columbia River System.

"Wanapum Inflow" - the daily average flow rate for water flowing into the Wanapum reservoir calculated at Rock Island based on data available to Chelan.

"Wells" - the Wells Dam located on the Columbia River System.

B. SCOPE AND DURATION

1. Purpose of Agreement and Relationship to Prior Agreement

This Agreement establishes the obligations of the Parties with respect to the protection of fall Chinook in the Hanford Reach of the Columbia River. The Parties agree that during the term of the Agreement these flow regimes address all issues in the Hanford Reach with respect to fall Chinook protection and the impact of operation of the seven dams operating under Mid-Columbia Hourly Coordination, including the obligations of Grant, Chelan, and Douglas under any new licenses issued by the Federal Energy Regulatory Commission (FERC). It is the intent of the Parties that this Agreement replaces and supersedes the original **June 16, 1988 Vernita Bar Agreement**.

2. Term, Effectiveness, and Regulatory Approvals

(a) This Agreement shall become effective on the date of execution of this Agreement by all Parties and shall continue for a period equal to the remainder of the current license for Priest Rapids Project No. 2114, plus the term(s) of any annual license(s) and the next new Priest Rapids Project license which may be issued thereafter.

(b) By signing this Agreement, the Agency Parties represent that they have assembled and reviewed substantial evidence, and that based on that substantial evidence, they will recommend to FERC that this Agreement be approved in its entirety.

(c) Promptly after the execution of this Agreement, Grant shall file it with the FERC and request that FERC include appropriate conditions in the new license for the Priest Rapids Project reflecting the terms and conditions of this Agreement. All Parties agree to submit a statement of support of this Agreement to FERC within a reasonable time of Grant's filing. The Parties, however, shall, without limitation or qualification, commence implementation of this Agreement at the beginning of the 2004 Rearing period.

(d) In the event that FERC shall issue an order which makes any material modification to the terms of this Agreement, either by additions to or omissions from its terms, any Party may, within 60 days following the issuance of a FERC order denying a request for rehearing, withdraw from this Agreement after giving the other Parties 30 days written notice of its intention to do so and of the reasons for its decision to withdraw.

(e) The Agency Parties represent and stipulate that this Agreement shall constitute the agency Parties terms, conditions and recommendations for any FERC licensing process of the Utility Parties; including any such necessary filings with the Washington Department of Ecology Section 401 certification process with respect to protection of fall Chinook in the Hanford Reach of the Columbia River.

(f) The Parties represent and stipulate that all submittals and recommendations to FERC, including those to Washington Department of Ecology, for inclusion in the new licenses for the Priest Rapids Project, the Rocky Reach Project and the Wells Project will in all respects be consistent with the terms and conditions of this Agreement.

(g) An Utility Party may, upon 30-days notice, withdraw from this Agreement and be relieved of all obligations under this Agreement in the event FERC, the Washington Department of Ecology, or other regulatory authority imposes on such Party any measure inconsistent with this Agreement or additional obligations with respect to the protection of fall Chinook and other aquatic resources in the Hanford Reach of the Columbia River.

(h) Nothing in this Agreement will limit or prohibit any action by any Party based on non-compliance with this Agreement.

3. Reopener Limitation/Withdrawal

(a) No Party may petition the FERC directly, or through the Washington Department of Ecology, to modify any provision of this Agreement or request any flows, minimum flows or other operation that is inconsistent with this Agreement, until ten years from the effective date of this Agreement, unless such modification is jointly requested by all Parties.

(b) Ten years following the effective date of this Agreement, a Party may:

- (1) Request reopening of this Agreement and the imposition by the FERC of different, additional or modified fall Chinook protection measures for the Hanford Reach;
- (2) Bring any cause of action, raise any defense (including exhaustion of administrative remedies at the FERC) or claim, or rely on any theory in any appropriate forum;
- (3) Petition any other appropriate administrative agency or political body for relief, including the deletion of one or more measures otherwise in effect under this Agreement, or;
- (4) Take other appropriate action relating to any issue or matter addressed by this Agreement that could have been addressed by this Agreement or the Parties with respect to protection of aquatic resources in the Hanford Reach.

(c) In any action under this subsection B.3(b) the petitioning Party shall have the burden of proof. The Parties will continue to implement this Agreement until the relief sought becomes effective by operation of law, unless otherwise agreed.

(d) With respect to any petition or suit filed pursuant to this subsection B.3(b) and any subsequent judicial review thereof, nothing in this Agreement shall bar, limit or restrict any Party from raising any relevant issue of fact or law, regardless of whether such issue is or could have been addressed by this Agreement.

(e) Notwithstanding any other provisions of this subsection B.3(b) any Party may participate in any legislative or administrative proceeding dealing with fish protection or compensation issues; provided that no Party may contend on its own behalf, or support any contention by other persons in any proceeding or forum, including the Northwest Power and Conservation Council, the Washington Department of Ecology Section 401 certification process, and/or Congress, that additional or different measures for protection of fall Chinook salmon in the Hanford Reach should be imposed on any Party until a period of ten years following the effective date of this Agreement has passed.

4. Stipulation of Adequacy

For ten years from the effective date of this Agreement, the Parties stipulate as follows:

(a) Performance of the requirements of Grant, Chelan, Douglas and BPA under this Agreement shall constitute acceptable protection of fall Chinook in the Hanford Reach, taking into account both hydropower and fishery needs.

(b) Performance by any Utility Party of its obligations under this Agreement satisfies the obligations of such Party with respect to protection of fall Chinook salmon in the Hanford Reach arising under applicable laws and regulations, including but not limited to the

Endangered Species Act, the Federal Power Act as amended by the Electric Consumers Protection Act of 1986, the Pacific Northwest Electric Power Planning and Conservation Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fisheries Conservation and Management Act. In any and all disputes, proceedings and hearings under the above applicable laws and regulations, the Parties will support the adequacy of protection for fall Chinook salmon in the Hanford Reach pursuant to this Agreement.

(c) Performance by any Party of its obligations under this Agreement shall constitute compliance with the applicable provisions of the Northwest Power and Conservation Council's Fish and Wildlife Program as currently written.

C. HANFORD REACH FALL CHINOOK PROTECTION

Subject to the limitations and conditions set out in this Agreement, Grant, Chelan, Douglas and BPA shall provide the following flow regimes for the Spawning through Rearing Period for Hanford Reach fall Chinook salmon in the Hanford Reach of the Columbia River.

1. Spawning Period

(a) All Parties agree that flows maintained during the Spawning Period and escapement levels are factors influencing the placement of Redds. The flow manipulation under this subsection C.1 is directed to minimize formation of Redds above the 70 kcfs elevation. Minimizing formation of Redds above the 70 kcfs elevation in turn is a key factor influencing the success of the flow regime under subsection C.4 during the Emergence Period.

(b) During the Spawning Period(s) of 2005 and 2006, Grant will experiment with alternative operations for flow manipulation. The requirement of the alternative operations will be to ensure that Priest Rapids Outflows are not higher than 70 kcfs and not lower than 55 kcfs for a continuous period of at least 12 hours out of each day during the Spawning Period. Grant will provide continuous monitoring of Redd formation during these tests and report the results weekly. These experiments may continue as long as no more than 31 Redds are located above the 65 kcfs elevation on Vernita Bar. If Redd counts reveal that more than 31 Redds are located above the 65 kcfs elevation, Spawning Period operations will default to the procedures of C.1(c) below. If Redd counts show that alternative Spawning Period operations can limit the formation of Redds above 70 kcfs, then Grant shall be allowed to choose between use of C.1(b) or C.1(c) as guidelines for operational parameters during the Spawning Period of future years.

(c) If the experimental operations testing during C.1(b) above are unsuccessful in minimizing formation of Redds above the 70 kcfs elevation, Grant's operations will revert to the default operation specified in this paragraph. During the Spawning Period,

Grant will operate Priest Rapids Project No. 2114 to the extent feasible through use of the Mid-Columbia Hourly Coordination and Reverse Load Factoring to produce a Priest Rapids Outflow during Daylight Hours that can range from 55 to 70 kcfs. The goal during the Spawning Period is to limit spawning to the area below the 70 kcfs elevation on Vernita Bar. In the event physical changes are made at the Priest Rapids Project which affect Grant's ability to provide Reverse Load Factoring, Grant agrees to meet with the Parties to this Agreement to determine what adjustments to Grant's obligation under this subsection C.1(c) shall be made, notwithstanding the provisions of subsections B.4 and B.5.

(d) The Parties agree that BPA has no obligation under this Agreement to limit fall flows to influence Redd location. This is, however, without prejudice to the rights of any Party to assert, except before the FERC prior to ten years from the effective date of this Agreement, that BPA may have an obligation apart from this Agreement to limit such flows and the rights of any Party to request cooperation of BPA, the Bureau of Reclamation and the Corps of Engineers to limit such flows. The Parties agree to work together to obtain the cooperation of BPA, the Bureau of Reclamation and the Corps of Engineers to achieve the desired flow regime.

2. Pre-Hatch Period

During the Pre-Hatch Period the Priest Rapids Outflow may be reduced to 36 kcfs for up to 8 hours on weekdays and 12 hours on weekends (with no two consecutive minimum periods). All Parties recognize that utilization of the 36 kcfs minimum may have to be limited to achieve the Priest Rapids Outflow goal during the Spawning Period.

3. Post-Hatch Period

(a) After Hatching has occurred at Redds located in the 36 to 50 kcfs zone, the Protection Level Flow shall be maintained over Vernita Bar so that the intergravel water level is no less than 15 cm below the 50 kcfs elevation.

(b) After Hatching has occurred at Redds located in the zone above the 50 kcfs elevation, the Protection Level Flow shall be maintained over Vernita Bar through the Post Hatch Period so that the intergravel water level is no less than 15 cm below the Critical Elevation.

4. Emergence Period

(a) During the Emergence Period, after Emergence has occurred in the 36 to 50 kcfs zone, the Protection Level Flow shall not be less than necessary to maintain water over Vernita Bar at the 50 kcfs elevation.

(b) During the Emergence Period, after Emergence has occurred above the 50 kcfs elevation, the Protection Level Flow shall be maintained at or above the Critical Elevation.

5. Rearing Period

(a) All Parties recognize that flow fluctuations during the Rearing Period may impact juvenile Hanford Reach fall Chinook. The Parties also recognize that elimination of all flow fluctuations is not physically possible without severely impacting the ability of Mid-Columbia Operators to produce a reliable supply of electricity. The goal during the Rearing Period is to provide a high level of protection for juvenile Hanford Reach fall Chinook rearing in the Hanford Reach by limiting flow fluctuations while retaining operational flexibility at each of the seven dams on the Mid-Columbia River.

(b) During the Rearing Period, Grant will operate Priest Rapids Project No. 2114 to the extent feasible through use of the Mid-Columbia Hourly Coordination to produce a Priest Rapids Outflow that limits flow fluctuations according to the following criteria:

- (1) When the Previous Day's Average Weekday Wanapum Inflow is between 36 and 80 kcfs limit Priest Rapids Weekday Outflow Delta to no more than 20 kcfs. When the average of BPA's Friday Chief Joseph Outflow Estimates plus side flow estimates for Saturday and Sunday is between 36 and 80 kcfs limit the Priest Rapids Weekend Outflow Delta to no more than 20 kcfs.
- (2) When Previous Day's Average Weekday Wanapum Inflow is between 80 and 110 kcfs limit Priest Rapids Weekday Outflow Delta to no more than 30 kcfs. When the average of BPA's Friday Chief Joseph Outflow Estimates plus side flow estimates for Saturday and Sunday is between 80 and 110 kcfs limit the Priest Rapids Weekend Outflow Delta to no more than 30 kcfs.
- (3) When Previous Day's Average Weekday Wanapum Inflow is between 110 and 140 kcfs limit Priest Rapids Weekday Outflow Delta to no more than 40 kcfs. When the average of BPA's Friday Chief Joseph Outflow Estimates plus side flow estimates for Saturday and Sunday is between 110 and 140 kcfs limit the Priest Rapids Weekend Outflow Delta to no more than 40 kcfs.
- (4) When Previous Day's Average Weekday Wanapum Inflow is between 140 and 170 kcfs limit Priest Rapids Weekday Outflow Delta to no more than 60 kcfs. When the average of BPA's Friday Chief Joseph Outflow Estimates plus side flow estimates for Saturday and Sunday is between 140 and 170 kcfs limit the Priest Rapids Weekend Outflow Delta to no more than 60 kcfs.
- (5) When Previous Day's Average Weekday Wanapum Inflow is greater than 170 kcfs Priest Rapids Outflow for the following weekday will be at least 150 kcfs. When the average of BPA's Friday Chief Joseph Outflow Estimates plus side flow estimates for Saturday and Sunday is greater than 170 kcfs, Priest Rapids Outflow for Saturday and Sunday will be at least 150 kcfs.

- (6) On four consecutive Saturdays and Sundays that occur after 800 TUs have accumulated after the end of the Spawning Period, Priest Rapids Outflow will be maintained to at least a minimum flow calculated as the average of the daily hourly minimum flow from Monday through Thursday of the current week.
- (c) All Parties agree that perfect compliance with the flow constraints of C.5(b) is not possible. Conditions related to inflow, reservoir elevation, accuracy of BPA estimates, emergencies and human error can contribute to exceeding the Priest Rapids Outflow Delta or Priest Rapids Outflow dropping below minimums specified. Grant will make every effort to meet the operating constraints.
- (d) On Monday, following lower flows from the weekend it is not considered a violation of the provisions in C.5(b) when Monday inflows require increasing the Priest Rapids discharge above the upper limit established at midnight on Sunday. If the upper limit is raised on Monday, the lower limit must be raised to allow the difference between the maximum and new minimum flow to remain within the applicable Priest Rapids Weekday Outflow Delta limit.
- (e) Problems can be expected from time to time. Grant will detail the circumstances associated with its inability to meet these constraints in the annual report described under C.6(c). In addition to annual reporting, the Parties agree to use the dispute resolution process described under E.9 whenever any Party claims excessive non-compliance.

6. Monitoring Team

For purposes of determining the Protection Level Flow during the Post Hatch and Emergence Periods, a Critical Elevation shall be determined each year as follows:

- (a) The Monitoring Team will survey Redds on Vernita Bar in the area specified on Exhibit A for the purpose of determining the Initiation of Spawning, the location of Redds and the extent of spawning. The Monitoring Team will also provide a concurrent aerial survey of the Hanford Reach on the same weekend(s). The aerial survey(s) will be utilized to determine if Initiation of Spawning in areas of the Hanford Reach below the 36 kcfs level and/or outside the area specified on Exhibit A occurs prior to Initiation of Spawning within the Exhibit A area above the 36 kcfs level. Once an initiation of Spawning date has been determined, based upon the presence of 5 or more reds in an individual survey, the aerial surveys maybe discontinued for that year. The surveys will be conducted on weekends beginning on the weekend prior to October 15 of each year.
- (b) The Monitoring Team will make a final Redd survey the weekend prior to Thanksgiving to determine the Critical Elevation. The Monitoring Team may also make a supplemental Redd survey the weekend after Thanksgiving to determine if additional Redds are present above the 50 kcfs elevation. A preliminary estimate of the Critical

Elevation will be made following the final Redd survey and will be confirmed or adjusted based on the supplemental survey. The Critical Elevation will be set as follows: (Elevations must be in 5 kcfs increments beginning at the 40 kcfs elevation.)

- (1) If 31 or more Redds are located above the 65 kcfs elevation, the Critical Elevation will be the 70 kcfs elevation.
- (2) If there are 15 to 30 Redds above the 65 kcfs elevation, the Critical Elevation will be the 65 kcfs elevation.
- (3) If there are fewer than 15 Redds above the 65 kcfs elevation, then the Critical Elevation will be the first 5 kcfs elevation above the elevation containing the 16th highest Redd within the survey area on Vernita Bar (see Table 1 below for examples of the application of these counts).

Table 1. Examples illustrating theoretical final Vernita Bar Redd counts and the resulting Critical Elevations, elevations are provided in kcfs ranges.

	36-50 kcfs	50-55 kcfs	55-60 kcfs	60-65 kcfs	65-70 kcfs	70+ kcfs	Resulting Critical Elevation
Example 1	836	418	148	71	48	34	70
Example 2	283	94	65	28	16	4	65
Example 3	105	35	10	3	1	0	55

(c) Additional activities of the Monitoring Team will include calculation of Temperature Units, determination of the dates of Initiation of Spawning, Hatching, Emergence, the end of the Emergence Period and the end of the Rearing Period. The Monitoring Team may also make non-binding recommendations to any of the Parties to this Agreement, including non-binding recommendations to protect Redds above the Critical Elevation or to address special circumstances. By September 1 of the following year, Grant will submit an annual report to the Monitoring Team and BPA. The annual report will include, but not be limited to: 1) Vernita Bar Redd Counts, 2) dates on which the Hatching, Emergence, End of Emergence and End of Rearing Periods occurred, 3) a record of Columbia River flows through the Hanford Reach based on Priest Rapids discharges, and 4) a description of the actual flow regimes from the Initiation of Spawning through the Rearing Period based on available data. During the rearing period, Grant will provide a weekly operations report to the Parties. After review by the Monitoring Team, the final report will be sent to all Parties. During the Rearing Periods of 2011, 2012 and 2013, the Parties will also meet to develop a follow-up monitoring program to estimate fry losses. This monitoring program will be designed according to protocols developed from 1999 to 2003 or alternatively with different methods developed by the Parties.

(d) If from time to time, disputes arise regarding activities of the Monitoring Team, the Parties agree to use the dispute resolution process described under E.9 below.

7. Redds Above Critical Elevation

This Agreement is not intended either to preclude or require protection of Redds above the Critical Elevation. The Parties shall meet annually to determine if there are measures that, in the joint discretion of Grant, Chelan, Douglas and BPA, can be taken to protect any Redds located above the Critical Elevation.

D. RIVER OPERATIONS

In order to achieve the required Protection Level Flows during the Post Hatch and Emergence Periods and to provide the desired flow regimes during the Rearing Period, Grant, Chelan, Douglas and BPA agree to the following:

1. Weekday Request

On any day other than a Saturday, Sunday or Holiday, BPA shall provide a Chief Joseph Uncoordinated Request that will, on a daily average basis and when converted from megawatts to Chief Joseph discharge, be not less than the Protection Level Flow minus Side Inflows. For example, if the Critical Elevation is established at 65 kcfs, BPA shall be required to submit a Chief Joseph Uncoordinated Request during the periods described in subsections C.3(b) and C.4(b) which is not less than (but nothing in this Agreement shall require the request to be greater than) 65 kcfs minus Side Inflows on a daily average basis. For Saturdays, Sundays, and Holidays, the Chief Joseph Uncoordinated Request shall not be less than the amounts set out in subsections D.2 and D.3 below.

2. Saturday Request

Beginning 0000 hours on any Saturday, BPA may reduce the Chief Joseph Uncoordinated Request so long as the Saturday midnight accumulation of the difference between the resulting Chief Joseph discharge and the Protection Level Flow minus the Side Inflows does not exceed 925 kcfsh. The accumulated difference calculated above will be identified as the Chief Joseph Accumulated Deficiency (CJAD).

3. Sunday or Holiday Request

On any Sunday or Holiday, BPA may reduce the Chief Joseph Uncoordinated Request so long as the midnight CJAD does not exceed 854 kcfsh.

4. Post-Sunday or Holiday Deficiency

Following any Sunday or Holiday, BPA shall provide a Chief Joseph Uncoordinated Request so that CJAD does not exceed at midnight on any day the CJAD of the preceding

midnight. On any weekend or holiday weekend when CJAD exceeds 0, BPA shall provide Chief Joseph Uncoordinated Requests such that CJAD will return to zero by 1200 hours on Wednesday of the following week.

5. Weekends During the Rearing Period

(a) BPA will provide flows necessary to meet the four weekend minimum flows as provided in C.5(b)(6). However, on any Saturday and Sunday of the prescribed four weekends BPA may reduce the Chief Joseph Uncoordinated Request so long as the resultant Sunday midnight accumulation of the difference between the resulting Chief Joseph discharge and the established weekend minimum flow minus the side inflows does not exceed the following criteria: 1) 925 kcfsh on Saturday at midnight, 2) 854 kcfsh on Sunday or any holiday at midnight.

(b) The accumulated difference calculated above will be identified as the Chief Joseph Accumulated Deficiency – II (CJAD-II). On all four designated weekends when CJAD-II exceeds 0, BPA shall provide Chief Joseph Uncoordinated Requests such that CJAD-II will return to zero by 1200 hours on Wednesday of the following week.

6. Grant, Chelan, Douglas and BPA Drafts and Refill

(a) Spawning through Emergence Period provisions are as follows:

(i) Grant, Chelan and Douglas shall utilize the actual discharges from the Chief Joseph Project and Side Inflows to meet the required Protection Level Flow. To the extent that actual discharges from the Chief Joseph Project, together with Side Inflows, are insufficient to meet the Protection Level Flow, Grant, Chelan and Douglas shall make up the deficiency by drafting their reservoirs in the following order and quantities to the extent required to comply with the flow regimes specified in this Agreement: 1) Grant will draft up to 3 feet from Priest Rapids, 2) Grant will draft up to 2 feet from Wanapum, 3) Chelan will draft up to 1 foot from Rocky Reach, (4) Douglas will draft up to 1 foot from Wells, and 5) Grant will draft up to 0.7 feet from Priest Rapids; provided, that in lieu of so drafting their reservoirs, Grant, Chelan and Douglas may, upon their agreement, draft their reservoirs in any alternative manner which provides the equivalent amount of total draft. Subsequent refill of the reservoirs shall be accomplished in the reverse order of draft (i.e., 0.7 feet at Priest Rapids, 1 foot at Wells, 1 foot at Rocky Reach, 2 feet at Wanapum and 3 feet at Priest Rapids) or in an alternative manner by agreement of Grant, Chelan and Douglas.

(ii) After BPA has met its Chief Joseph Uncoordinated Request obligations, and after Grant, Chelan and Douglas have provided the drafts described above, additional water may still be required from time to time on a short-term basis to

meet the flow regimes specified in this Agreement. Such additional water may be required to the extent that: 1) actual discharges from the Chief Joseph Project differ from Chief Joseph discharges which would have resulted from Chief Joseph Uncoordinated Requests, and/or 2) the CJAD exceeds, from time to time, 925 kcfsh. Whenever such additional water is required on a short-term basis, it will be provided by the draft of all seven dams associated with the operation of Mid-Columbia Hourly Coordination in proportion to 50% Federal and 50% Non-Federal contribution on a content basis.

(b) During the Rearing Period prescribed in C.5 Grant will operate Priest Rapids Project No. 2114 to limit flow fluctuations and maintain a minimum flow for the four designated weekends as described in C.5(b) through the following provisions:

- (i) After drafts of 1 foot from each of Wanapum and Priest Rapids (or combination thereof) have been provided, Chelan and Douglas will provide drafts of up to 1 foot from Rocky Reach and Wells Projects. All drafts will be measured from a pre-determined baseline.
- (ii) After conditions under (i) above have been provided, Grant will draft Wanapum and/or Priest Rapids beyond 1 foot each as necessary to meet the rearing requirements under C.5., limited to a total equivalent draft of 3.7 feet at Priest Rapids and 2 feet at Wanapum.
- (iii) Chelan, Douglas and Grant, upon their agreement may draft their reservoirs in any alternative manner, which provides an equivalent amount of total draft.
- (iv) After BPA has met its Chief Joseph Uncoordinated Request obligations, and after Grant, Chelan and Douglas have provided the drafts described above, additional water may still be required from time to time on a short-term basis to meet the flow regimes of C.5. Such additional water may be required to the extent that: 1) actual discharges from the Chief Joseph Project differ from Chief Joseph discharges which would have resulted from Chief Joseph Uncoordinated Requests, and/or 2) the CJAD-II exceeds, from time to time, 925 kcfsh. Whenever such additional water is required on a short-term basis, it will be provided by the draft of all seven dams associated with the operation of Mid-Columbia Hourly Coordination in proportion to 50% Federal and 50% Non-Federal contribution on a content basis.

7. BPA Request Requirements

BPA shall provide sufficient generation requests and hourly coordination operating parameters for Grand Coulee and Chief Joseph via Mid-Columbia Hourly Coordination such that the discharge from Chief Joseph, which would result absent modification by non-Federal generation requests via Mid-Columbia Hourly Coordination, would not be less than the flows required in subsections D.1 through D.5 above.

8. Relationship to Section C

Nothing in the foregoing subsections D.1 through D.7 shall limit or diminish the obligations of the Parties under Section C.

9. Draft at Mid-Columbia Projects

Notwithstanding any other provision of this Agreement, Grant, Chelan and Douglas shall not be required to draft their respective reservoirs in a manner which would be inconsistent with the requirements of any applicable FERC license or to a level less than one (1) foot above the applicable FERC license minimum reservoir elevation. At any time that a reservoir is within one (1) foot above the applicable FERC license minimum reservoir elevation, that project shall have no further obligation under this Agreement except to pass the inflow entering that project's reservoir.

Whenever the sum of the remaining pondage in Priest Rapids, Wanapum, Rocky Reach, and Wells is less than 1500 kcfsh, Grant, Chelan, Douglas and BPA shall confer to coordinate operations regarding the maintenance of the Protection Level Flow or operations necessary to meet Priest Rapids Weekday and Weekend Outflow Delta limits during the Rearing Period.

10. Excuse of Performance

In the event any performance by any Party is rendered impossible by an act of the Bureau of Reclamation or the Corps of Engineers which is beyond the control of such Party, such performance shall be excused until the cause of such impossibility is removed or eliminated.

11. Adverse Water Conditions

When the National Weather Service/Soil Conservation Service Joint official March 1, January-July volume of runoff forecast at Grand Coulee is less than the Critical Runoff Volume, the Parties will meet prior to any reductions and discuss an allocation of available flows between power interests, fishery interests at the Hanford Reach and other nonpower interests. After such discussions, BPA may reduce its flow requests below those required under Section D resulting in a proportional reduction in the Protection Level Flow and Critical Elevation, provided that such reductions are approximately proportional to the adverse impact on Columbia River firm hydropower generation from the reduced flow volume, and provided that failure to refill shall not be the determining factor in measuring such adverse impacts. In no event shall the effect of this paragraph result in a reduction in the Protection Level Flow of greater than 15% or below 50 kcfs, whichever provides for a higher Protection Level Flow.

12. Instantaneous Minimum Flow for the Hanford Reach

The Parties further agree that a minimum instantaneous release of 36 kcfs from Priest Rapids Dam as measured at USGS gauge No. 12472800 will be maintained during all time periods except for those times when maintenance of the Protection Level Flow and Rearing Period operation constraints require a higher instantaneous minimum flow. The Parties agree that this minimum flow was historically intended to provide general protection for aquatic resources, water quality, recreation, and operation of water intakes of the Hanford Reservation and other beneficial uses of the Hanford Reach of the Columbia River.

The agreements are not comprehensive in either the issues they address or the parties who have signed them. The signatories to the Hanford Agreement are: Grant PUD, Public Utility District No. 1 of Chelan County, Washington; Public Utility District No. 1 of Douglas County, Washington; DOE, acting by and through BPA; FWS; NMFS; Washington DFW; and Colville.

E. MISCELLANEOUS

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9. Dispute Resolution

(a) Disputes covering issues associated with the implementation of this Hanford Reach Fall Chinook Protection Program shall be subject to the dispute resolution procedures.

(b) In the event that a dispute arises over an issue associated with the implementation of the Hanford Reach Fall Chinook Protection Program, the Party raising the issue shall provide written notice of the issue and the supporting rationale to each Party to the Agreement. Within five days of receipt of such notice, the Parties shall develop a subcommittee to review the disputed issue(s). The subcommittee shall be composed of one (1) representative of each Party. Within twenty (20) days of receipt of notice of a dispute, the subcommittee shall seek to resolve the dispute. Parties shall endeavor in good faith to reach a resolution of the dispute using the best available information.

(c) At the end of the twenty-(20) day period, the appropriate subcommittee shall provide a report to the Parties describing the outcome of their efforts under Section C.8(b), above. In the event that the subcommittee has identified a proposed resolution that is consistent with terms of the Hanford Reach Fall Chinook Protection Program, the report shall describe the proposed resolution, the basis for the proposed resolution, and such additional information as may be necessary to support the proposed resolution. In the event that the subcommittee was unable to resolve the dispute, the report shall describe

the remaining issues in dispute, the efforts to resolve them, and any additional information pertinent to resolving the outstanding issues in a timely manner.

(d) Upon receipt of a report described above, the Parties, within thirty (30) days, will approve or disapprove the proposed resolution. In the event that it approves the proposal, the Parties will implement the resolution as accepted. In the event that the resolution requires the regulatory approval of FERC or another regulatory entity, Grant PUD, with the support of the Parties, shall seek prompt approval of the resolution by FERC or the relevant regulatory authority, and the appropriate Party or Parties shall proceed with its implementation upon receipt of the required approval. In the event that the report identifies unresolved issues, the Parties shall undertake to resolve the matter according to procedures identified in the Alternative Dispute Resolution section below.

(e) Alternative Dispute Resolution: The Parties may use non-binding alternative dispute resolution (ADR) procedures involving a third-party mediator and in cooperation with FERC representatives to seek a resolution of an outstanding dispute that could not be resolved by the designated subcommittee. The Parties shall cooperate in good faith to promptly schedule, attend and participate in the ADR, and to devote the time, resources and attention to the ADR as may be necessary to attempt to resolve the dispute as promptly as possible.

(f) Final Action: If, by the end of the thirty (30) day period (or the period otherwise agreed to), the Parties have not resolved the dispute, any Party may petition FERC for a remedy.