

UNITED STATES OF AMERICA 111 FERC ¶62,084  
FEDERAL ENERGY REGULATORY COMMISSION

Tacoma Power

Project No. 2016 - 088

ORDER MODIFYING AND APPROVING DOWNSTREAM FISH  
PASSAGE AND COLLECTION PLAN FOR RIFFE LAKE  
AND COWLITZ FALLS, ARTICLES 401 AND 1

(Issued April 22, 2005)

On July 19, 2004, Tacoma Power (licensee) filed its Downstream Fish Passage and Collection Plan for Riffe Lake and Cowlitz Falls pursuant to Article 401 and Settlement Agreement Article 1 of the March 13, 2002 Order Approving Settlement and Issuing New License<sup>1</sup> and Article 401 of the July 9, 2004 Order Amending New License<sup>2</sup> for the Cowlitz River Project. By letter issued September 26, 2003, the Commission established the effective and issuance date of the new license for compliance purposes as July 18, 2003, the date of the Order Denying Rehearing and Lifting Stay.<sup>3</sup> The project consists of the Mayfield and Mossyrock developments and is located on the Cowlitz River in Lewis County, in southwestern Washington.

BACKGROUND AND LICENSE REQUIREMENTS

License Article 401 incorporates Settlement Agreement (SA) articles 1, 2, and 3, which address upstream and downstream fish passage at the project. SA Article 1 requires the licensee to develop a plan for downstream fish passage and collection at Riffe Lake and Cowlitz Falls. The licensee is required to prepare the plan in collaboration with, and subject to approval by, the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS). Further, the licensee is required to provide the plan to the Fisheries Technical Committee (FTC)<sup>4</sup> for a 30-day review and comment period. The plan is required to include:

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<sup>1</sup> 98 FERC ¶ 61,274 (2002)

<sup>2</sup> 108 FERC ¶ 61,031 (2004)

<sup>3</sup> 104 FERC ¶ 61,092 (2003)

<sup>4</sup> The FTC is comprised of representatives from the FWS, NMFS, Washington Department of Fish and Wildlife (WDFW) and Washington Department of Ecology

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- (1) a report on the results of negotiations among the licensee, Lewis County Public Utility District (LCPUD, licensee for the Cowlitz Falls Project, FERC No. 2833) and the Bonneville Power Administration (BPA) regarding shared funding of cooperative efforts to improve downstream passage and collection effectiveness at or near Cowlitz Falls;
- (2) proposed facilities and measures most likely to achieve the goal of 95% Fish Passage Survival (FPS), as defined in the SA, to be funded by the licensee to contribute to effective downstream passage and collection at or near Cowlitz Falls and/or to be constructed by the licensee downstream of Cowlitz Falls Dam at Riffe Lake;
- (3) plans to support the on-going operation and maintenance of facilities and measures for downstream passage and collection at or near Cowlitz Falls and/or at Riffe lake each year for the term of the license;
- (4) plans for monitoring and evaluation of effectiveness, including determination of the combined FPS of the existing, proposed new and/or improved facilities at or near Cowlitz Falls and/or Riffe Lake; and
- (5) a construction and implementation timeline not to exceed 12 months from plan approval by the Commission, unless the licensee can establish good cause for additional time.

Additionally, Article 1 requires the licensee, within 18 months of completion of the new and/or modified Riffe Lake/Cowlitz Falls downstream fish passage/collection facilities, to file a report on the effectiveness of the facilities and measures, including an evaluation of the FPS achieved by the facilities and measures. If the FPS achieved has not reached 95% or at least 75% with the best available technology within 3 years of issuance of the July 2004 Order Amending License, the report is required to include a plan and schedule providing for any further improvements to downstream passage facilities or measures as are determined by the NMFS and the FWS to be most likely successful in reaching the 95% FPS.

Finally, Article 1 requires the licensee to implement, or support implementation of, additional downstream passage facility improvements and file additional reports at 18 month intervals in accordance with the preceding paragraph until the licensee has employed the best available technology and achieved at least 75% FPS for all species.

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## LICENSEE'S PLAN

### (1) NEGOTIATIONS WITH LCPUD AND BPA

The licensee continues to report monthly to NMFS, FWS and the Commission on the status of the negotiations between LCPUD and BPA to mutually improve downstream fish passage and collection efficiency at or near Cowlitz Falls Dam. The licensee states that an Access Agreement (Agreement) was signed on March 17, 2003, to allow research and development activities at Cowlitz Falls Dam. However, the licensee states that several issues arose during negotiations, including: access to the dam facility for testing, how testing actions might disrupt operations of the Cowlitz Falls Dam, and how the tests would be funded. The licensee states that the Agreement, included in their filing, provides for amendment of the Agreement, upon agreement of the parties, to include research plans for the subsequent years. The licensee states that preliminary agreement was reached on two feasible items that are included in the licensee's plan and amended Agreement. Further, the licensee states that they provided a draft proposal to LCPUD and BPA concerning capital construction and long-term maintenance costs at the Cowlitz Falls Fish Collection Facility (CFFCF), for which negotiations are still on-going.

### (2) FACILITIES AND MEASURES MOST LIKELY TO ACHIEVE 95% FPS

The licensee states that the measures most likely to achieve success at Cowlitz Falls Dam would involve a combination of surface bypass collector(s) (SBC) and operational changes by implementing several interim measures. The licensee plans to focus on designing a SBC system that would likely include new baffle panels, attraction pumps and operating systems to facilitate installation and removal.

To improve the collection and determine the timing of age 0+ spring Chinook salmon outmigrants emigrating from the upper Cowlitz River basin, the licensee plans to use two Lake Merwin type traps in Lake Scanewa. All juvenile Chinook outmigrants and salmonid smolts collected in the Merwin traps would be transported to the stress relief ponds at the licensee's Cowlitz Salmon Hatchery except those marked and released. Releases of marked fish captured from the traps would be done to calculate fish collection efficiency at Cowlitz Falls Dam. The licensee states that a final report on numbers captured and transported and trap efficiency would be included in the Cowlitz Falls Annual Report.

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The licensee also plans to extend the operation period of the CFFCF (currently collection efforts terminate in late August) into the fall and early winter months, periods that juvenile salmonids historically outmigrated from the upper Cowlitz River basins. The licensee states that discussions are ongoing with NMFS and LCPUD as to the length of the extended operation, whether it is continuous, and whether it must be staffed 24 hours per day.

In developing a SBC, the licensee plans to implement the following 4-step design process: 1) conduct a research review of all past studies at Cowlitz Falls Dam to improve the knowledge base of the species' response to flow volume, velocity, and acceleration gradients to define the volume of water required to attract fish into the bypass system; 2) coordinate biology and engineering into design alternatives by conducting Computation Fluid Dynamic (CF) modeling to allow the study of the hydraulic environment created by the Cowlitz Falls Dam and its operations to assist in the design of a prototype SBC and to investigate potential linkages between project operations and downstream fish passage; 3) design and install a prototype SBC system for deployment in 2005 based on the results of fish collection research and CF modeling; and 4) install a more permanent SBC likely consisting of two units (one for each turbine) following implementation of a successful prototype SBC. The first permanent SBC would be in operation in 2006 in spillgate #2 while the original prototype would continue in operation in spillgate #3. Following 2006, a SBC would be in operation for each of the three turbines.

With regard to future changes at Cowlitz Falls Dam, the licensee plans to coordinate with LCPUD, BPA and the Commission regarding options to modify the existing debris barrier to make it more fish friendly. Since the SBC concept currently being developed has a 20-foot depth of surface attraction, the existing 9-foot deep debris barrier may not have the negative impact previous studies suggest. As a result, the licensee plans to test the actual effect with the barrier in place in 2006 and removed in 2007 while the two SBC's are operating. Regarding operational changes, the licensee plans to evaluate year-round operation of the CFFCF, study the possibility of limiting reservoir drawdowns, pulsing turbines, limiting turbine operation and splitting flows between turbine and sluiceways. Such proposals are intended to supplement a successful SBC to increase overall fish passage efficiencies to the target levels.

The licensee states that NMFS would be involved in the design development of all actions proposed and taken to achieve the 95% FPS standard and would be given final plans for approval prior to implementation. The licensee states that they are coordinating

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related effects of the Merwin trapping program and the CFFCF extended operation program with LCPUD and BPA.

**(3) PLANS TO SUPPORT THE ON-GOING OPERATION AND MAINTENANCE OF FACILITIES AND MEASURES FOR DOWNSTREAM PASSAGE AND COLLECTION**

The licensee states that they have recently proposed to LCPUD and BPA a long-term agreement covering capital improvements and operations and maintenance of the CFFCF, which negotiations are still on-going. The licensee plans to proceed with funding the increased costs associated with the interim measures as well as the engineering proposals included in their plan. The licensee states that no delays to the design or implementation of their proposals would occur due to negotiations with LCPUD and BPA not being finalized. The licensee plans to implement the following measures: 1) attend CFFCF technical meetings; 2) provide manpower and equipment for tasks at the CFFCF or Cowlitz Falls Dam; 3) fund research activities and projects at CFFCF or Cowlitz Falls Dam; 4) operation of the upper Cowlitz River fish transportation system, including transporting adult salmon and steelhead upstream of the Cowlitz River dams and transporting juvenile salmonids and steelhead downstream from Cowlitz Falls Dam to the stress relief ponds at the licensee's Cowlitz Salmon Hatchery.

**(4) PLANS FOR MONITORING AND EVALUATION OF EFFECTIVENESS, INCLUDING DETERMINATION OF COMBINED FPS**

The licensee states that the effectiveness of FPS at Cowlitz Falls Dam can be calculated using an experimental approach of determining the annual fish guidance efficiency values and the annual yield of naturally produced smolts from the upper Cowlitz River basin. The licensee's filed plan includes the necessary steps to calculate FPS on an annual basis by species and a model they plan to use for calculating FPS from the upper river basin to below their Barrier Dam.

**(5) CONSTRUCTION SCHEDULE AND TIMELINE NOT TO EXCEED 12 MONTHS FROM PLAN APPROVAL BY COMMISSION**

The licensee states that CF modeling of Cowlitz Falls Dam began in 2003 with the implementation of the interim measures identified under (2) above and the engineering studies concerning the debris barrier, reservoir drawdown, baffle panels, and SBC design was initiated in 2004. For 2005, the licensee plans to install the prototype SBC with the installation of a permanent SBC operating in parallel with the prototype and debris barrier

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in place in 2006. Construction of a second permanent SBC and removal of the debris barrier is scheduled for 2007 as previously discussed. The licensee further states that many of the answers to determine what measures would achieve the 95% FPS would be further developed through the monitoring and evaluation of their planned modifications at Cowlitz Falls Dam.

## SCHEDULE

SA Article 1 requires the licensee, within 18 months of completion of the new and/or modified Riffe Lake/Cowlitz Falls downstream fish passage/collection facilities, to file a report on the effectiveness of the facilities and measures, including an evaluation of the FPS achieved by the facilities and measures. If the FPS achieved has not reached 95% or at least 75% with the best available technology, the report is required to include a plan and schedule providing for any further improvements to downstream passage facilities or measures as are determined by the NMFS and the FWS to be most likely successful in reaching the 95% FPS. The licensee states that since two SBC's would be operating in the spring of 2006 with the two permanent SBC's operating in the spring of 2007, they plan to submit their FPS report required by Article 1 to NMFS and the Commission by December 31, 2007.

## AGENCY CONSULTATION

SA Article 1 requires the licensee to prepare the plan in consultation with, and subject to approval by, the NMFS and the FWS. By email dated March 31, 2004 and included in the licensee's plan, the FWS deferred to NMFS for approval of Article 1. By letter dated July 15, 2004, the NMFS approved the licensee's plan.

## DISCUSSION AND CONCLUSIONS

The licensee states that implementation of the interim measures identified under (2) above and the engineering studies concerning the debris barrier, reservoir drawdown, baffle panels, and SBC design was initiated in 2004. For 2005, the licensee plans to install the prototype SBC with the installation of a permanent SBC operating in parallel with the prototype and debris barrier in place in 2006. Construction of a second permanent SBC and removal of the debris barrier is scheduled for 2007.

Many of the answers related to achieving the 95% FPS standard or at least 75% FPS with the best available technology, would be developed over time through the monitoring and evaluation of the planned modifications and measures at Cowlitz Falls

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Dam as well as coordination with the NMFS, FTC, LCPUD and BPA. As required by Article 1, the licensee plans to submit their FPS effectiveness report to NMFS and the Commission by December 31, 2007, following the installation and testing of a second permanent SBC (in addition to the prototype SBC). With the installation of the prototype SBC in the spring of 2005, to capture the downstream juvenile outmigration, and the permanent SBC in 2006, the licensee's proposed reporting date would satisfy the 18-month reporting requirement of Article 1.

However, the licensee only states that their report would be submitted to the NMFS and the Commission by their proposed date and not to the FTC for comment or approval by the NMFS prior to filing their report with the Commission. As required by Article 1, the licensee should provide a draft report, and plan and schedule to the FTC for a 30-day review and comment period and receive approval from the NMFS and the FWS prior to filing the final report, and plan and schedule (if applicable) with the Commission. This coordination and approval process should also be adhered to for any additional reports, 18-month reports, and plans and schedules required by this order until the licensee has employed the best available technology and achieved at least 75% FPS for all species in accordance with Article 1 or as otherwise agreed to by NMFS, FWS and FTC. Therefore, the duration of filing additional reports at 18-month intervals beyond the December 31, 2007 reporting date, regardless if 95% Fish Passage Survival or at least 75% with the best available technology is achieved for all species, should be approved by the NMFS and the FWS. Additionally, considering the licensee is required to achieve the 95% or at least 75% FPS within 3 years from issuance of the July 2004 Order Amending License, the licensee should file by February 15, 2006 and February 15, 2007, a status report describing the activities scheduled for that year with the Commission developed in consultation with the NMFS and FWS.

Part 12 of the regulations states that any water power project is subject to inspection and supervision of the Regional Engineer or any other authorized Commission representative. To ensure proper installation of the SBC's and associated fish screens, the licensee should coordinate the work with Commission staff in the Portland Regional Office. In addition to coordinating with the Commission's Portland Regional Office, the licensee should provide copies of the design documents to the NMFS, FWS, and FTC for their review.

The licensee's Downstream Fish Passage and Collection Plan and associated interim measures should assist in developing necessary modifications at Cowlitz Falls Dam to work toward achieving the 95% FPS standard or at least 75% FPS with the best available technology. Coordination with the NMFS, FWS, FTC, LCPUD and the BPA

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should assist in providing appropriate guidance and direction for determining such appropriate modifications to achieve the stated FPS standards.

The licensee's plan satisfies the requirements of license Article 401 and SA Article 1 of the March 13, 2002 Order Approving Settlement and Issuing New License for the Cowlitz River Project. Therefore, the licensee's plan, as modified, should be approved.

The Director orders:

(A) The Downstream Fish Passage and Collection Plan, filed July 19, 2004, under license Article 401 and Settlement Agreement Article 1 of the March 13, 2002 Order Approving Settlement and Issuing New License and the Order Amending New License issued July 9, 2004 for the Cowlitz River Project, as modified by paragraphs (B) through (E), is approved.

(B) The license shall file with the Commission by February 15, 2006, and February 15, 2007, a status report describing the activities scheduled for that year. The licensee shall provide a draft status report to the Fisheries Technical Committee for a 30-day review and comment period and receive approval from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service prior to filing the report with the Commission.

(C) The licensee shall file by December 31, 2007, for Commission approval, a report on the effectiveness of the downstream fish passage/collection facilities and measures, including an evaluation of the Fish Passage Survival achieved by the facilities and measures. If the Fish Passage Survival achieved has not reached 95% or at least 75% with the best available technology for all species, the report shall include a plan and schedule providing for any further improvements to downstream passage facilities or measures as are determined by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to be most likely successful in reaching 95% Fish Passage Survival. The licensee shall provide a draft report, and plan and schedule (if applicable) to the Fisheries Technical Committee for a 30-day review and comment period and receive approval from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service prior to filing the final report, and plan and any schedule with the Commission. The Commission reserves the right to make any changes to the plan to improve downstream passage.

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(D) The licensee shall file, for Commission approval, a revised reporting schedule agreed to by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service and the Fisheries Technical Committee. The duration of filing additional reports at 18-month intervals beyond the December 31, 2007 reporting date, regardless if 95% Fish Passage Survival or at least 75% with the best available technology is achieved for all species, shall be approved by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

(E) Pursuant to Paragraphs 12.4, 12.11 and 12.40 of the Commissions regulations, 60 days prior to the planned initiation of construction, the plans and specifications package and a quality control and inspection program shall be submitted to the Regional Engineer. Authorization to start construction activities will be given by the Regional Engineer after all preconstruction requirements are satisfied.

(F) The licensee shall file an original and seven copies of any filing required by this order with:

The Secretary  
Federal Energy Regulatory Commission  
Mail Code: DHAC, PJ-12.3  
888 First Street, NE  
Washington, DC 20426

(G) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days from the date of issuance of this order, pursuant to 18 CFR § 385.713.

George H. Taylor  
Chief, Biological Resources Branch  
Division of Hydropower Administration  
and Compliance