

108 FERC ¶ 61,031
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
Nora Mead Brownell, Joseph T. Kelliher,
and Suedeen G. Kelly.

City of Tacoma, Washington

Project No. 2016-071

ORDER AMENDING NEW LICENSE

(Issued July 9, 2004)

1. In this order, we amend the new license for the 462-megawatt Cowlitz River Project No. 2016 in response to a biological opinion for continued operation and maintenance of the project, filed by the National Marine Fisheries Service (NOAA Fisheries). The amendment includes conditions to protect several species of fish listed as threatened under the Endangered Species Act (ESA).

I. Background

2. The Commission approved a settlement agreement and issued a new license for the Cowlitz Project on March 13, 2002.¹ To accommodate a state-issued stay of the water quality certification for the project, the Commission issued the new license with an effective date of April 12, 2002, and later stayed the new license in response to the state's extension of the stay pending completion of the certification appeal. On July 18, 2003, the Commission issued an order denying rehearing and lifting the stay.² Several parties filed petitions for judicial review, and the case is currently pending before the U.S. Court of Appeals for the Ninth Circuit.³

¹ 98 FERC ¶ 61,274 (2002). The project is located on the Cowlitz River in Lewis County, and in part on lands within the Gifford Pinchott National Forest.

² 104 FERC ¶ 61,092 (2003).

³ Cowlitz Indian Tribe *et al.* v. FERC, No. 03-73225 (9th Cir. filed Sept. 10, 2003).

3. When we issued the new license in March 2002, the Commission staff had already completed consultation pursuant to section 7 of the ESA with the U.S. Fish and Wildlife Service (FWS), but had not yet received a biological opinion from NOAA Fisheries. Staff was still awaiting a biological opinion when we issued our rehearing decision in July 2003. On December 19, 2003, NOAA Fisheries filed a draft biological opinion for comment with the Commission. Anticipating that a final biological opinion would soon be filed, the Commission staff filed with the court a motion for leave to amend the new license as needed to implement the final biological opinion.⁴ NOAA Fisheries filed its final biological opinion on March 25, 2004, and the court granted the motion for leave to amend on April 26, 2004. Thus, we are now in a position to amend the new license to include appropriate provisions to protect the listed fish species.

II. Discussion

4. Under section 7 of the ESA, the Commission must ensure, in consultation with NOAA Fisheries or FWS, as appropriate, that its proposed action is not likely to jeopardize the continued existence of any listed species, or destroy or adversely modify any designated critical habitat for those species. As noted, we issued our relicensing and rehearing decisions before completing formal consultation with NOAA Fisheries. As a result, NOAA Fisheries has defined the proposed action as continued operation and maintenance of the Cowlitz Project under the terms and conditions of the new license. NOAA Fisheries finds that the proposed action is not likely to jeopardize the continued existence of the listed species (Lower Columbia River Chinook salmon, Lower Columbia River steelhead, and Columbia River chum salmon, all of which are listed as threatened). There is currently no critical habitat designated for these species.

5. Under section 9 of the ESA and regulations issued under section 4(d) of that act, no person may take any individual member of a threatened or endangered species. A “take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Incidental take is defined as a taking that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Incidental taking is authorized, but only if it is in compliance with the terms and conditions of an incidental take statement included in a biological opinion. To ensure that any incidental taking will be authorized, NOAA Fisheries has identified reasonable and prudent measures to avoid or minimize incidental taking, as well as terms and conditions to implement those measures.

⁴ Under section 313(b) of the Federal Power Act (FPA), the Court of Appeals has exclusive jurisdiction to affirm, modify, or set aside a Commission order after the record has been filed with the reviewing court. However, any party may request that the court grant the Commission leave to take additional evidence and modify its findings. *See* 18 U.S.C. § 825l(b).

6. In Article 408 of the new license, we reserved our authority to require the licensee to take whatever action we deem necessary as a result of NOAA Fisheries' biological opinion. In Article 401 of the license, we required that, in addition to the requirements of the settlement agreement, all plans regarding fish passage must also be submitted to the Commission for approval. We further required that any license conditions that contemplate unspecified long-term changes to project operations or facilities for the purpose of mitigating environmental impacts may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. These requirements apply to any plans or changes required by the incidental take conditions as well. The anticipated amount of incidental taking, reasonable and prudent measures to minimize taking, and terms and conditions to implement the reasonable and prudent measures are addressed below.

7. As discussed in our order approving the settlement and issuing a new license, compliance with the terms of the settlement agreement is required by both the Forest Service's mandatory conditions under section 4(e) of the FPA and Ecology's water quality certification under section 401 of the Clean Water Act. In addition, the mandatory fishway prescriptions of Interior and Commerce under section 18 of the FPA are essentially the same as Articles 1, 2, and 3 of the settlement agreement. Ordering paragraph D of our order issuing a new license states that the license is subject to the settlement agreement conditions set forth in Appendix A to that order. Similarly, ordering paragraphs E, F, and G, respectively, state that the license is subject to the Forest Service's section 4(e) conditions in Appendix B, Ecology's water quality certification conditions in Appendix C, and Interior's and Commerce's section 18 fishway prescriptions in Appendix D.

8. NOAA Fisheries states that the terms and conditions of the incidental take statement "all constitute no more than a minor change in the proposed action because they provide details on more general license and/or Settlement Agreement conditions."⁵ Although incidental take conditions are not technically mandatory in that we are not legally required to include them in the license without modification, they do exert a powerful coercive effect. Any taking that is not in compliance with the incidental take conditions is a violation of the ESA and can be subject to civil and criminal penalties. Therefore, our practice has been to include these conditions in our licenses, either as license articles or as an ordering paragraph with an appendix, and to make minor, non-substantive changes to them as necessary for clarity. We agree that most of the incidental take conditions either provide more detail to the terms of the settlement agreement or add conditions that are consistent with it. However, as discussed below, condition 1(a) makes a substantive change to the approach taken in the settlement agreement, and condition 2 states that the Commission must modify specific settlement articles to include additional

⁵ Biological Opinion at 9-3.

requirements regarding flow changes. While we have no authority to modify the settlement agreement or to reduce any mandatory conditions in a license, we do have authority to amend the license to add provisions that are supplemental to or more stringent than the mandatory conditions. Therefore, we have amended the license to include these conditions.

9. As discussed in the biological opinion, NOAA Fisheries anticipates that the proposed action will cause “more than a negligible amount” of incidental taking of the listed species, in the form of adult harm caused by handling of fish during trap-and-haul operations and delay or injury of adult and juvenile fish during passage at project dams. NOAA Fisheries states that it is unable to quantify the amount of incidental take of individual fish or incubating eggs resulting from project operation. The one exception is for fish passage survival from the Upper Cowlitz River through the project; this is expected to continue at current levels for the next three years, and then to reach 75-95 percent as required by the license and the settlement agreement. NOAA Fisheries finds that the level of anticipated take is not likely to jeopardize the continued existence of the listed species.⁶

10. NOAA Fisheries specifies five reasonable and prudent measures (RPMs) to minimize taking, and states that activities that are consistent with these measures do not require further site-specific consultation. The RPMs are general, and are designed to be implemented by the five more specific terms and conditions of the incidental take statement.

11. RPM 1 requires that Tacoma minimize the likelihood of incidental taking by following all of the items in the license (through the settlement agreement) relating to anadromous fish. RPM 2 discusses the reserved authority in the license (through Articles 15 and 16 of the settlement agreement) to modify the flow regime, as well as the possibility that flow fluctuations may adversely affect fish. However, RPM 2 does not specify any particular measures to minimize incidental taking. RPM 3 requires that Tacoma develop a plan, with NOAA Fisheries’ approval, to minimize the likelihood of incidental taking from handling anadromous fish during trap-and-haul operations. RPM 4 requires that Tacoma use adaptive management to ensure that reestablishment of listed fish is occurring at a level needed to avoid jeopardy and to reduce fish mortality to meet the objectives of a viable population of spring chinook salmon and a contributing population of steelhead. RPM 5 requires that Tacoma minimize the likelihood of incidental taking from construction activities in or near watercourses by restricting instream work to recommended time periods, implementing pollution and erosion control measures, and avoiding or replacing lost riparian and instream functions.

⁶ *Id.* at 9-1 to 9-2.

12. To implement these RPMs, NOAA Fisheries specifies five terms and conditions, many of which are quite detailed.⁷ Condition 1 requires Tacoma to follow all license articles and the associated settlement agreement, particularly those that relate to salmon, their habitat, and implementation of those measures, including adaptive management measures. The license already requires this, so no change is needed to implement it. However, condition 1 then states that these requirements include, but are not limited to, eight “key provisions” that NOAA Fisheries designates (a) through (h). These provisions generally track the articles of the settlement agreement, with some minor additions or changes.

13. Some of the more detailed provisions of the incidental take conditions require the development of new plans, to be filed within one or two years of license issuance. Where appropriate, we have added new license articles to address these plans. Because the new license was issued in April 2002 and stayed until July 2003, we have adjusted these time periods, as necessary, to provide that the plans must be filed within one or two years of the issuance of this order amending the new license. For plans already required by the license, the existing time periods remain in effect.⁸

14. Condition 1(a) of the incidental take statement requires passage performance standards for downstream passage at Mossyrock Dam to be 95 percent survival, or at least 75 percent survival with the best available technology, within three years of issuance of the biological opinion. For downstream passage at Mayfield Dam, Condition 1(a) requires 95 percent survival without specifying any particular time period. Article 2 of the settlement agreement includes provisions for downstream passage at Mayfield and Mossyrock but does not require that these passage performance standards be met. The settlement agreement allows more time for adaptive management and monitoring to determine the effectiveness of the measures. Thus, if the passage performance standards cannot be met at Mossyrock within three years, this condition would leave no avenue for further measures or modifications without reinitiating consultation. Although we have no

⁷ *Id.* at 9-3 through 9-17. Page 9-3 of the biological opinion includes a single reference to a condition 6. This reference appears to be a typographical error, because the biological opinion sets forth only five incidental take conditions that correspond to the five reasonable and prudent measures.

⁸In response to the licensee’s request, the Commission staff clarified that, because the new license was stayed until July 18, 2003, that date would be used as both the effective date and the issuance date of the new license for compliance purposes. *See* letter from Hossein Ildari, Office of Energy Projects, FERC, to Donald H. Clarke dated September 26, 2003.

authority to amend the settlement agreement, we can amend the license to add provisions that are more stringent. Therefore, we have amended Article 401 of the license to include these performance standards.

15. Condition 1(b) of the incidental take statement requires that Tacoma release specified minimum flows below Mayfield Dam at different times throughout the year. This condition essentially tracks article 13 of the settlement agreement, with two minor changes. For the period from August 15 through September 30, both the settlement agreement and the incidental take condition require that flows below Mayfield Dam must be a minimum of 2,000 cfs. If releases below Mayfield exceed 5,000 cfs for a five-day period, flows may not be decreased below 5,000 cfs until after a spawning survey is conducted to determine whether redds are present. Condition 1(b) of the incidental take statement makes a minor correction to the location of this spawning survey; that is, the survey must be conducted in key side channel areas at river miles 42.5 and 47 instead of at river miles 42 and 42.5, as specified in article 13 of the settlement agreement. NOAA Fisheries notes that this is a correction that the licensee provided to the Fisheries Technical Committee. We have amended Article 402 of the license to reflect this correction.

16. Condition 1(b) of the incidental take statement also makes a minor change to the minimum flow requirements for the period from October 1 through November 20. Both the settlement agreement and the incidental take condition specify that minimum-flow releases below Mayfield Dam must be 3,500 cfs during this period. Items 2 and 3 of the incidental take statement condition include additional requirements to ensure protection of redds established during the period from August 15 through November 20. Article 13 of the settlement agreement includes similar requirements, but only for the period from August 15 through September 30. We have amended Article 402 of the license to reflect this extension of the time period for these requirements.

17. For the period from November 1 through February 28, both the article 13 of the settlement agreement and condition 1(b) of the incidental take statement require that minimum flow releases from Mayfield Dam be maintained at the lesser of: (1) eight inches of river stage height below the highest consecutive five-day average flow during which active spawning occurred; (2) 5,000 cfs; or (3) a lower flow authorized by the fisheries technical committee or agencies based on the results of spawning surveys. Condition 1(b) of the incidental take statement adds NOAA Fisheries as an agency that must approve alternate means of monitoring minimum flows or reductions in minimum flow releases that will not adversely affect downstream salmonid redds. The condition also adds NOAA Fisheries as an agency that must be notified if conditions beyond Tacoma's control require a temporary modification of flows, and an agency that must give prior agreement to temporary deviations from the minimum flow schedule. We have amended Article 402 to reflect these changes. We have also added the Commission as an agency that must be notified of any deviations from the flow schedule.

18. Condition 1(c) of the incidental take statement requires Tacoma to follow the ramping rate restrictions of article 14 of the settlement agreement at flows less than 6,000 cfs. Article 14 of the settlement agreement allows the ramping rates to be modified based on further study and approval by the Fisheries Technical Committee, of which NOAA Fisheries is a member. Condition 1(c) of the incidental take statement requires that NOAA Fisheries approve any such modification of the ramping rates. Because this would change the manner in which the project is operated, the licensee must file an amendment request for Commission approval before implementing the change. We have amended Article 402 of the license to reflect these changes.

19. Condition 1(d) of the incidental take statement requires Tacoma to submit a fish monitoring plan, as required by article 15 of the settlement agreement. Condition 1(d) specifies that the plan shall include a plan to investigate the effects of project operation on anadromous fish redd abandonment and dewatering and entrapment and stranding of juvenile and adult fish. We have amended Article 402 of the license to include this requirement.

20. Both the incidental take statement and article 16 of the settlement agreement require that Tacoma submit a report on implementation of instream flows, describing measures taken to ensure compliance, including a training manual for Tacoma's operations staff and any recommended modifications to operating procedures. Condition 1(e) of the incidental take statement requires that the training manual provide tools, resources, and information to manage flows for flood control, recreation, power generation, and fish survival and health. We have amended Article 402 of the license to include this requirement.

21. Condition 1(f) of the incidental take statement requires Tacoma to develop a plan, within one year of license issuance, in consultation with the Fisheries Technical Committee agencies, to monitor the maintenance and use of side-channel habitat in the Cowlitz River downstream of Mayfield Dam. This condition further provides that, if flow management under the new license is insufficient to maintain the availability and anadromous fish habitat function of these side channels, NOAA Fisheries and Ecology retain the authority to modify the flow constraints or require other measures to preserve side channel habitat and function. This is a new requirement not included in the settlement agreement. We have added a new Article 409 to the license to reflect this requirement. Article 409 requires that the plan be filed within one year of issuance of this license amendment. Article 409 further requires that the Commission must review and approve the plan, and any proposed changes must be the subject of a license amendment application that the Commission must also review and approve.

22. Condition 1(g) of the incidental take statement requires that Tacoma file a water quality monitoring plan for the Lower Cowlitz River. Although the water quality certification covers some aspects of monitoring, it does not require a monitoring plan.

Thus, this is a new requirement. The plan is to be developed in consultation with NOAA Fisheries and Ecology, and must include monitoring of water temperature, dissolved oxygen concentrations and percent saturation, total dissolved gas concentration and percent saturation, total nitrogen and ammonia concentrations, and total and ortho-phosphorus concentrations. The plan is to be filed within six months of issuance of the biological opinion. We have added a new Article 410 to require this plan, which must be filed within six months of issuance of this license amendment.

23. Condition 1(h) of the incidental take statement provides that Tacoma must file a fisheries and hatchery management plan, as required by article 6 of the settlement agreement. This condition tracks article 6, but adds the requirement that the plan include a chum salmon analysis. We have added a new Article 411 to incorporate the requirements of article 6 of the settlement agreement and to include the requirement that the plan include a chum salmon analysis.

24. As noted, Article 408 of the license reserved the Commission's authority to amend the license as needed as a result of the biological opinion. Condition 2 of the incidental take statement invokes this authority to provide that the Commission must modify articles 15 and 16 of the settlement agreement. The amendment is to specify that, if requested by the Commission or Ecology, Tacoma must modify project operations to provide agency-specified stream flows downstream from Mayfield Dam within the time frame specified by the Commission or Ecology, to be not less than 48 hours from the time of the request, and that such flow modifications will remain in effect until superceded by subsequent action of the Commission or Ecology. The condition further specifies that the Commission must notify NOAA Fisheries following initiation of a flow-change action, and that such notification should not be cause to delay implementation of any flow change that the Commission or Ecology has identified as needed. As noted, we have no authority to amend the settlement agreement. However, we have implemented this condition by adding a new Article 412 to the license. We have also provided that the licensee, rather than the Commission, must notify NOAA Fisheries following initiation of a flow change action. If the Commission determines that the change may affect ESA-listed species, the Commission will initiate the appropriate consultation with NOAA Fisheries.

25. Condition 3 of the incidental take statement requires that Tacoma develop a plan, in consultation with the Fisheries Technical Committee, including NOAA Fisheries, and with NOAA Fisheries' approval, that addresses and minimizes harm to anadromous fish during any trap and haul operation. The plan must adhere to specified criteria and be completed and implemented within one year of issuance of the biological opinion. Articles 1 through 3 of the settlement agreement address trap and haul operations, but do not require the specific plan described in Condition 3. We have added a Article 413 to the license to require that Tacoma develop and implement this plan within one year of

issuance of this license amendment. Article 413 also clarifies that the plan must be submitted to the Commission for its review and approval.

26. Condition 4(a) of the incidental take statement provides that adaptive management will be implemented as described in the analysis of effects of the proposed action in section 6 of the biological opinion. Section 6.3.9 of the biological opinion discusses the adaptive management process in detail. We have added Article 414 to the license to reflect this condition. Article 414 also clarifies that the licensee must file an application for a license amendment before making any changes to project facilities or operation that are not already authorized by the terms of the license.

27. Condition 4(b) of the incidental take statement requires that Tacoma develop a fish passage plan and update it annually, subject to NOAA Fisheries' review and approval. The fish passage plan must include plans for the operation and maintenance of all fish passage facilities, emergency operation of those facilities, protocols for emergencies, a schedule for inspection of facilities to ensure that they are operating within established criteria, reporting of inspection results, and anticipated special operation of the facilities for research. Although the settlement agreement addresses fish passage in article s1 through 3, it does not require a fish passage plan. Thus, this is a new requirement. We have added Article 415 to the license to require this plan. Article 415 also clarifies that the plan must be submitted to the Commission for review and approval.

28. Condition 5 of the incidental take statement requires that, in all proposed actions involving construction in or near waterways, Tacoma must follow a detailed list of construction practices, designated items (a) through (v), to control sediment, disturbance, and other potential detrimental effects to listed salmonids. With the exception of item (u), which is addressed in new license Article 417 discussed below, we have added Article 416 to the license to require compliance with these conditions (reproduced as Appendix E to this order) for all proposed actions involving construction in or near waterways. Article 417 further provides that, before beginning any proposed action involving construction in or near waterways, the licensee must file, for Commission review and approval, a plan showing how these requirements will be implemented for the particular action.

29. Condition 5(u) of the incidental take statement requires that, for large woody debris and gravel placement, Tacoma must develop best management plans, in consultation with NOAA Fisheries, to minimize impacts to listed fish during implementation of the projects. The condition further requires that NOAA Fisheries approve the activity before it may begin. Article 9 of the settlement agreement requires the licensee to file a plan to make large woody debris available for fish habitat restoration projects in the Cowlitz River Basin. Article 10 of the settlement agreement requires the licensee to file a plan to augment spawning gravel below Barrier Dam to enhance salmonid habitat. Both articles require that the plans be submitted to the Commission for

review and approval. We have added Article 417 to the license to clarify that, in preparing the plans required by articles 9 and 10 of the settlement agreement, Tacoma shall also develop best management plans, in consultation with NOAA Fisheries, to minimize impacts to listed fish, and shall obtain the approval of NOAA Fisheries, as well as that of the Commission, before implementing these plans.

The Commission orders:

(A) Articles 401 and 402 of the license are amended to read as follows:

Article 401.

(a) Requirement to File Plans for Commission Approval:

Settlement agreement articles 1, 2 and 3 (Appendix A) require the licensee to prepare plans regarding fish passage in consultation with the Fisheries Technical Committee or the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Washington Department of Fish and Wildlife, and Washington Department of Ecology (FTC or agencies) if the agreement has become void. Water quality certification conditions 1b, 1c, and 1e require the license to prepare plans for monitoring effects of instream flow on salmon habitat, dewatering salmon redds, stranding juvenile and adult salmon, and monitoring total dissolved gases associated with spill events. Each such plan shall also be submitted to the Commission for approval. These plans are listed below in the approximate sequence we anticipate they would be filed.

Settlement Article No.	Facility or Activity	Due Date from License Issuance or Otherwise Specified
Article 1	Plan for downstream fish passage and collection facilities and measures at Riffe Lake or Cowlitz Falls (if Lewis County Public Utility District concurs).	6 months
Article 2	Study plan or study results evaluating turbine mortality and the effectiveness of existing louver system at Mayfield Dam.	6 months
Article 3	Plan for studies to evaluate whether criteria for implementing effective upstream volitional passage facilities have been met.	6 months

Settlement Article No.	Facility or Activity	Due Date from License Issuance or Otherwise Specified
Article 1	A plan for further improvements to downstream passage facilities or measures at Riffe Lake or Cowlitz Falls (if Lewis County Public Utility District concurs), based on effectiveness studies and continued monitoring and evaluation of those facilities. As required by condition 1(a), part i, of the incidental take statement, downstream passage performance standards at Mossyrock must be 95 percent survival or at least 75percent survival with best available technology within 3 years of issuance of this order amending license.	18 months from completion of new or modified facilities.
Article 2	Plan for improvements to downstream fish passage at Mayfield Dam.	3 years
Article 2	If 95% FPS has not been achieved at Mayfield Dam, plans to further improve the effectiveness of the facilities or measures, or to substitute other measures.	18 months from completion of downstream passage improvements, with additional plans at 18-month intervals if recommended by FTC.
Article 3	Design and schedule for constructing volitional upstream passage facilities.	<p>In the first annual report that is filed within the first 12 years that indicates that, within the next 3 years or less, volitional passage criteria will be met for (1) any species originating in the Tilton basin and (2) either spring Chinook or late winter steelhead originating above Mossyrock Dam.</p> <p>By the end of year 12, if volitional passage criteria have been or will be met for any salmonid species in</p>

Settlement Article No.	Facility or Activity	Due Date from License Issuance or Otherwise Specified
		the Tilton River by year 15.
Article 3	Plan to abandon volitional upstream fish passage and expend the \$15 million in the fish passage escrow account.	By year 14, if determined by the FTC or agencies and affected tribes that expenditure of escrow funds on additional measures in lieu of volitional passage is necessary and appropriate to achieve natural stock restoration.

Water Quality Condition	Facility or Activity	Due Date from License Issuance or Otherwise Specified
1b	Plan and schedule for study of IHA/RVA methodology	To be determined in consultation with Ecology
1c	Plan and schedule to monitor side channel habitat for Chinook salmon	To be determined in consultation with Ecology
1e	Total dissolved gas Transect Study Plan for each dam	April 1, 2003
1e	Total dissolved gas Preliminary Compliance Schedule for each dam	August 1, 2003

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

(b) Requirement to File Amendment Applications:

Certain license conditions contemplate unspecified long-term changes to project operations or facilities for the purpose of mitigating environmental impacts. These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. The condition is listed below.

Settlement Article No.	Modification
Article 15 and 16	Modification of instream flows or pulsing flows for channel maintenance, if monitoring shows flows to be inadequate.

Water Quality Certification Conditions	Modification
Condition 1c and 1d	Modification of instream flows, pulsing flows or ramping rates, if monitoring shows flows are causing de-watering of redds or stranding of juvenile or adult salmon
Condition 1e	Structural or operational modifications to reduce total dissolved gas concentration to within water quality standards

Article 402. The licensee shall file an annual monitoring report by December 31 of each year following license issuance that contains the provisional USGS or equivalent daily flow records for USGS gage 14238000 and a written explanation of any instream flow deficiencies from those required by agreement articles 13 and 14 (Appendix A) that have occurred within the year. The report should show the actual flow versus the required flow and an explanation for any deviation. If any violation of the agreement is noted, the report should discuss this in detail. The frequency and detail of the flow record reports may be modified with Commission approval and in accordance with any recommended modifications resulting from the fish monitoring plan required by agreement article 15 or the instream flow implementation report required by agreement article 16, or as otherwise provided for in agreement articles 13 and 14.

As required by condition 1(b) of the incidental take statement: (a) the spawning survey shall occur at River Mile 42.5 and 47, which is a correction of the locations stated in article 13, part c, of the settlement agreement; (b) when releases below Mayfield Dam during the August 15- November 20 period meet or exceed 5,000 cfs for a consecutive five-day period as measured by the daily mean flows, minimum flows shall be maintained at the lesser of 5,000 cfs or 8 inches of river stage height below the highest consecutive 5-day average flow during which active spawning occurred, as measured at

USGS Station No. 14238000; and (c) during the November 21- February 28 minimum flow period, if deviation from the flow schedule occurs due to operating emergencies beyond the control of the licensee then WDOE, NOAA Fisheries, and the Commission shall be notified within 10 days, instream flows shall be monitored at USGS Station No. 14238000 or via other means approved by FTC, NOAA Fisheries, and the Commission, and, for changes to the schedule release, for short periods of time, the licensee shall have prior agreement from WDOE and NOAA Fisheries; and notify the Commission within 10 days.

As required by condition 1(c) of the incidental take statement, the licensee shall follow the ramping rate restrictions as shown in Table 2 (settlement article 14) at flows less than 6,000 cfs, unless modified with NOAA Fisheries, FTC, and Commission approval, based on further study.

As required by condition 1(d) of the incidental take statement, the licensee shall, within one year of issuance of this order, file a Fish Monitoring Plan for Commission approval. In addition to the requirements of settlement article 15, the plan shall include measures to thoroughly investigate the effects of project operations on anadromous fish redd abandonment and dewatering and entrapment and stranding of juvenile and adult fish.

As required by condition 1(e) of the incidental take statement, the licensee shall, within 2 years of issuance of this order, file with the Commission a report describing measures taken to ensure compliance with instream flows that includes a training manual for licensee's operation staff to ensure compliance with instream flows. In addition to the requirements of settlement article 16, the training manual shall provide tools, resources, and information to manage flows for flood control, recreation, power generation, and fish survival and health. The Commission reserves the right to require changes to the plan.

(B) The license is amended to add Articles 409, 410, 411, 412, 413, 414, 415, 416, and 417, as follows:

Article 409. As required by condition 1(f) of the incidental take statement, within 1 year of issuance of this order, the licensee, in consultation with the Fisheries Technical Committee, shall develop and file for Commission approval a plan to monitor the maintenance and use of side-channel habitat in the Cowlitz River downstream from Mayfield Dam. In the event flow management under the constraints contained in the license is insufficient to maintain the availability and anadromous fish habitat function of side channels, NOAA Fisheries and the Washington Department of Ecology can require changes to modify the flow constraints or require other measures to preserve side-channel habitat availability and function. Any such changes shall require Commission approval

and any flow modifications that change the release schedule of license Articles 401 or 402 should be reported to the Commission within 10 days (per license Articles 401 and 402).

Article 410. As required by condition 1(g) of the incidental take statement, within 6 months of issuance of this order the licensee shall file for Commission approval a water quality monitoring plan for the Lower Cowlitz River. The plan shall be developed in consultation with NOAA Fisheries and Washington Department of Ecology. The plan shall include monitoring of water temperature, dissolved oxygen concentration and percent saturation, total dissolved gases concentration and percent saturation, total nitrogen and ammonia concentrations, and total and ortho-phosphorus concentrations. The plan shall be provided to the Fisheries Technical Committee and tribes for a 30-day review. The final plan shall have documentation of consultation and copies of comments and recommendations, and specific description of how the final plan accommodates all comments and recommendations.

Article 411. As required by condition 1(h) of the incidental take statement, within 9 months of issuance of this order the licensee shall file for Commission approval a Fisheries and Hatchery Management Plan that incorporates settlement article 6 and identifies: a) quantity and size of fish to be produced at the complex; b) rearing and release strategies for each stock, including upward and downward production adjustments to accommodate recovery of indigenous stocks; c) credit mechanisms for production of high quality natural stocks; d) plans for funding ongoing monitoring and evaluation; and e) a fisheries management strategy consistent with the priority objective of maximizing natural production of wild indigenous fish stocks and species in the basin hatchery plan. The plan shall include a chum salmon analysis and be updated at 6-year intervals.

Article 412. As required by condition 2 of the incidental take statement, the licensee shall modify project operations to provide agency-specified stream flows downstream from Mayfield Dam within the time frame specified by Washington Department of Ecology (WDOE) or the Commission, not to be less than 48 hours from the time of the request, and that such flow modification will remain in effect until superseded by subsequent WDOE or Commission action. The licensee must notify NOAA Fisheries following initiation of a flow-change action. Such notification shall not cause delay to implementation of any flow change identified by WDOE or the Commission.

Article 413. As required by condition 3 of the incidental take statement, the licensee shall, within one year of issuance of this order, develop a trap and haul plan, in consultation with the Fisheries Technical Committee, including NOAA Fisheries, and file the plan for NOAA Fisheries and Commission approval. The plan shall address and minimize harm to anadromous fish during any trap and haul operation. The plan shall adhere to the most updated criteria at the time of the plan regarding trapping and hauling

of anadromous fish as outlined in the document “Draft Anadromous Salmonid Passage Facility Guidelines and Criteria,” available at http://www.nwr.noaa.gov/1hydrop/hydroweb/docs/release_draft.pdf

Additionally, as the number of adult fish returning to the applicable traps increase, the licensee must increase the trap and haul capabilities before existing capabilities are exceeded.

Article 414. As required by condition 4(a) of the incidental take statement, the licensee shall implement adaptive management, described in the analysis of effects of the proposed action in section 6 of the biological opinion as setting objectives, defining management actions designed to achieve those objectives, implementing those actions, monitoring and evaluating the outcomes, and making changes in management actions in response to new information.

Article 415. As required by condition 4(b) of the incidental take statement, the licensee shall, on an annual basis, file for Commission approval a final Fish Passage Plan. The plan shall be subject to NOAA Fisheries review and approval. In addition to the provisions of settlement articles 1, 2, and 3, the plan shall include, but not be limited to, plans for the operation and maintenance of all fish passage facilities, emergency operations of said facilities, protocols for emergencies, schedule for inspection of facilities (to ensure operation within established criteria), reporting procedures of inspection results, and anticipated special operation of the facilities for research.

Article 416. As required by conditions 5(a) through 5(t) and condition 5(v) of the incidental take statement, the licensee shall, in all proposed actions involving construction in or near waterways, follow the construction practices set forth in Appendix E to this order. At least ninety (90) days before the start of any proposed action involving construction in or near waterways, the licensee shall file for Commission approval a plan that describes how the licensee intends to implement the requirements of Appendix E for that action.

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Article 417. As required by condition 5(u) of the incidental take statement, in preparing the large woody debris plan required by settlement article 9 and the gravel augmentation plan required by settlement article 10, the licensee shall also develop best management plans, in consultation with NOAA Fisheries, to minimize impacts to listed fish, and shall obtain the approval of NOAA Fisheries, as well as that of the Commission, before implementing these plans.

By the Commission.

(S E A L)

Linda Mitry,
Acting Secretary.

APPENDIX E

In all proposed actions involving construction in or near waterways, the licensee shall follow the construction practices described below to control sediment, disturbance, and other potential detrimental effects to listed salmonids.

- a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
- b. Alteration or disturbance of the streambanks and existing riparian vegetation will be minimized to the greatest extent possible.
- c. No herbicide application should occur as part of this action. Mechanical removal of undesired vegetation and root nodes is permitted.
- d. All existing vegetation within 150 ft of the edge of bank should be retained to the greatest extent possible.
- e. Timing of inwater work. Work below the bankfull elevation will be completed during the State of Washington's or the Corps' preferred inwater work period as appropriate for the project area, unless otherwise approved in writing by NOAA Fisheries.
- f. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage. All materials, equipment, and fuel must be removed if flooding of the area is expected to occur within 24 hours.
- g. Fish screens. All water intakes used for a project, including pumps used to isolate an inwater work area, will have a fish screen installed, operated, and maintained according to NOAA Fisheries' fish screen criteria.
- h. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and maintained after construction for the life of the project. Passage will be designed in accordance with NOAA Fisheries' "Anadromous Salmonid Passage Facility Guidelines and Criteria" (2003). Upstream passage is required during construction if it previously existed.
- i. Construction activities associated with habitat enhancement and erosion control measures must meet or exceed best management practices and other performance standards contained in the applicable state and federal permits.

- j. Pollution and Erosion Control Plan. Prepare, in consultation with NOAA Fisheries, and carry out a Pollution and Erosion Control Plan to prevent pollution caused by survey, construction, operation, and maintenance activities. The Plan will be available for inspection upon request by FERC or NOAA Fisheries.
- (i) Plan Contents. The Pollution and Erosion Control Plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
- (1) The name and address of the party(s) responsible for accomplishment of the Pollution and Erosion Control Plan.
 - (2) Practices to prevent erosion and sedimentation associated with access roads, decommissioned roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, and staging areas.
 - (3) Practices to confine, remove, and dispose of excess concrete, cement, and other mortars or bonding agents, including measures for washout facilities.
 - (4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
 - (5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment, and cleanup measures that will be available on the site; proposed methods for disposal of spilled materials; and employee training for spill containment.
 - (6) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
 - (7) Erosion control materials (e.g., silt fence, straw bales, aggregate) in excess of those installed must be available on site for immediate use during emergency erosion control needs.
 - (8) Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work exceeding 7 days.
- (ii) Inspection of erosion controls. During construction, the operator must monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often if necessary, to ensure they are working adequately.
- (1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

- (2) Remove sediment from erosion controls once it has reached one-third of the exposed height of the control.
- k. Construction discharge water. Treat all discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows:
 - (i) Water quality. Design, build, and maintain facilities to collect and treat all construction discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.
 - (ii) Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities will not exceed 4 ft per second, and the maximum size of any aperture will not exceed 4 ft per second.
 - (iii) Spawning areas, submerged estuarine vegetation. Do not release construction discharge water within 300 ft upstream of spawning areas or areas with submerged estuarine vegetation.
 - (iv) Pollutants. Do not allow pollutants, including green concrete, contaminated water, silt, welding slag, or sandblasting abrasive to contact any wetland or the 2-year floodplain, except cement or grout when abandoning a drill boring or installing instrumentation in the boring.
- l. During completion of habitat enhancement activities, no pollutants of any kind (sewage, waste spoils, petroleum products, etc.) should come in contact with the water body or wetlands nor their substrate below the mean high-high water elevation or 10-year flood elevation, whichever is greater.
- m. Treated wood.
 - (i) Projects using treated wood that may contact flowing water or that will be placed over water where it will be exposed to mechanical abrasion or where leachate may enter flowing water will not be used, except for pilings installed following NOAA Fisheries' guidelines.
 - (ii) Projects that require removal of treated wood will use the following precautions:
 - (1) Treated wood debris. Use the containment necessary to prevent treated wood debris from falling into the water. If treated wood debris does fall into the water, remove it immediately.

- (2) Disposal of treated wood debris. Dispose of all treated wood debris removed during a project, including treated wood pilings, at an upland facility approved for hazardous materials of this classification. Do not leave treated wood pilings in the water or stacked on the streambank.
- n. Preconstruction activity. Complete the following actions before significant alteration of the project area:
 - (i) Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary. Construction activity or movement of equipment into existing vegetated areas must not begin until clearing limits are marked.
 - (ii) Emergency erosion controls. Ensure that the following materials for emergency erosion control are on site: A supply of sediment control materials (e.g., silt fence, straw bales), and an oil-absorbing, floating boom whenever surface water is present.
 - (iii) Temporary erosion controls. All temporary erosion controls will be in place and appropriately installed downslope of project activity within the riparian buffer area until site rehabilitation is complete.
- o. Temporary access roads.
 - (i) Steep slopes. Do not build temporary roads mid-slope or on slopes steeper than 30%.
 - (ii) Minimizing soil disturbance and compaction. Low-impact, tracked drills will be walked to a survey site without the need for an access road. Minimize soil disturbance and compaction for other types of access whenever a new temporary road is necessary within 150 ft of a stream, water body, or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.
 - (iii) Temporary stream crossings.
 - (1) Do not allow equipment in the flowing water portion of the stream channel where equipment activity could release sediment downstream, except at designated stream crossings.
 - (2) Minimize the number of temporary stream crossings.
 - (3) Design new temporary stream crossings as follows:
 - (a) Survey and map any potential spawning habitat within 300 ft downstream of a proposed crossing.

- (b) Do not place stream crossings at known or suspected spawning areas, or within 300 ft upstream of such areas if spawning areas may be affected.
 - (c) Design the crossing to provide for foreseeable risks (e.g., flooding and associated bedload and debris) to prevent the diversion of stream flow out of the channel and down the road if the crossing fails.
 - (d) Vehicles and machinery will cross riparian buffer areas and streams at right angles to the main channel wherever possible.
- (4) Obliteration. When the project is completed, obliterate all temporary access roads, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the inwater work period.

p. Vehicles.

- (i) Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (e.g., minimally sized, low ground pressure equipment).
- (ii) Vehicle staging. Fuel, operate, maintain, and store vehicles as follows:
 - (1) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage, except for that needed to service boats, in a vehicle staging area placed 150 ft or more from any stream, water body, or wetland, unless otherwise approved in writing by NOAA Fisheries.
 - (2) Inspect all vehicles operated within 150 ft of any stream, water body, or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by FERC or NOAA Fisheries.
 - (3) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below the bankfull elevation until all visible external oil, grease, mud, and other visible contaminants are removed. Any washing of equipment must be conducted in a location that will not contribute untreated wastewater to any flowing stream or drainage area.
 - (4) Diaper all stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 ft of any stream, waterbody, or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or water body.
 - (5) At the end of each work shift, vehicles must not be stored within or over the waterway.

- q. Site preparation. Conserve native materials for site rehabilitation.
- (i) If possible, leave native materials where they are found.
 - (ii) If materials are moved, damaged, or destroyed, replace them with a functional equivalent during site rehabilitation.
 - (iii) Stockpile any large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site rehabilitation.
- r. Isolation of inwater work area. If adult or juvenile fish are reasonably certain to be present, or if the work area is less than 300 ft upstream of spawning habitats, completely isolate the work area from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NOAA Fisheries.
- s. Capture and release. Before and intermittently during pumping to isolate an inwater work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
- i. The entire capture and release operation will be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.
 - (ii) If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines, listed below.
 - (1) Do not electrofish near adult salmon in spawning condition or near redds containing eggs.
 - (2) Keep equipment in good working condition. Complete manufacturers' preseason checks, follow all provisions, and record major maintenance work in a log.
 - (3) Train the crew by a crew leader with at least 100 hours of electrofishing experience in the field using similar equipment. Document the crew leader's experience in a logbook. Complete training in waters that do not contain listed fish before an inexperienced crew begins any electrofishing.
 - (4) Measure conductivity and set voltage as follows:

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400
 - (5) Use direct current (DC) at all times.

- (6) Begin each session with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.
 - (7) The zone of potential fish injury is 0.5 meters from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated, because in such areas the fish are more likely to come into close contact with the anode.
 - (8) Work the monitoring area systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
 - (9) Have crew members carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. End sampling if injuries occur or abnormally long recovery times persist.
 - (10) Whenever possible, place a block net below the area being sampled to capture stunned fish that may drift downstream.
 - (11) Record the electrofishing settings in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.
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- (iii) Do not use seining or electrofishing if water temperatures exceed 18°C.
 - (iv) Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures, to prevent the added stress of out-of-water handling.
 - (v) Transport fish in aerated buckets or tanks. Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.
 - (vi) If a listed fish is injured or killed at any point during the salvage operation, the NOAA Fisheries Law Enforcement Office will be contacted (360-418-4248).
 - (vii) Do not transfer ESA-listed fish to anyone except NOAA Fisheries or USFWS personnel, unless otherwise approved in writing by them.
 - (viii) Obtain all other federal, state, and local permits necessary to conduct the capture and release activity.
 - (ix) Allow NOAA Fisheries or the USFWS or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

- t. Earthwork. Complete earthwork (including drilling, excavation, dredging, filling, and compacting) as quickly as possible.
- (i) Excavation. Material removed during excavation will only be placed in locations where it cannot enter sensitive aquatic resources. Whenever topsoil is removed, it must be stored and reused on site to the greatest extent possible. If culvert inlet/outlet protecting riprap is used, it will be class 350 metric or larger, and topsoil will be placed over the rock and planted with native woody vegetation.
 - (ii) Drilling and sampling. If drilling, boring, or jacking is used, the following conditions apply.
 - (1) Isolate drilling operations in wetted stream channels using a steel pile, sleeve, or other appropriate isolation method to prevent drilling fluids from contacting water.
 - (2) If it is necessary to drill through a bridge deck, use containment measures to prevent drilling debris from entering the channel.
 - (3) If directional drilling is used, the drill, bore, or jack hole will span the channel migration zone and any associated wetland.
 - (4) Sampling and directional drill recovery/recycling pits, and any associated waste or spoils, will be completely isolated from surface waters, off-channel habitats, and wetlands. All drilling fluids and waste will be recovered and recycled or disposed to prevent entry into flowing water.
 - (5) If a drill boring conductor breaks and drilling fluid or waste is visible in water or a wetland, all drilling activity will cease, pending written approval from NOAA Fisheries to resume drilling.
 - (iii) Site stabilization. Stabilize all disturbed areas, including obliteration of temporary roads, following any break in work, unless construction will resume within 4 days.
 - (iv) Source of materials. Obtain boulders, rock, woody materials, and other natural construction materials used for the project outside the riparian buffer area.
- u. Implementation monitoring. For projects undertaken by or funded by Tacoma Power, Tacoma Power will submit a monitoring report to FERC and NOAA Fisheries within 120 days of project completion describing the success in meeting the RPMs and associated terms and conditions of the Opinion.
- (i.) Project identification.
 - (1) Project implementor name, project name, detailed description of the project.

- (2) Project location by 5th or 6th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
- (3) Starting and ending dates for the work completed.
- (ii) Photo documentation. Photo documentation of habitat conditions at the project site before, during, and after project completion.
 - (1) Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
 - (2) Label each photo with date, time, project name, photographer's name, and documentation of the subject activity.
- (iii) Other data. Additional project-specific data, as appropriate, for individual projects.
 - (1) Work cessation. Dates work ceased because of high flows, if any.
 - (2) Fish screen. Compliance with NOAA Fisheries' fish screen criteria.
 - (3) Pollution and Erosion Control Plan. A summary of pollution and erosion control inspections, including any erosion control failures, contaminant releases, and correction efforts.
 - (4) Description of site preparation.
 - (5) Isolation of inwater work area, capture, and release.
 - (a) Supervisory fish biologist's name and address.
 - (b) Methods of work area isolation and take minimization.
 - (c) Stream conditions before, during, and within 1 week after completion of work area isolation.
 - (d) Means of fish capture.
 - (e) Number of fish captured by species.
 - (f) Location and condition of all fish released.
 - (g) Any incidence of observed injury or mortality of listed species.
 - (6) Streambank protection.
 - (a) Type and amount of materials used.
 - (b) Project size - one bank or two, width, and linear feet.
 - (7) Site rehabilitation. Photo or other documentation that site rehabilitation performance standards were met.

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