

Exhibit A

Proposed License Articles

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Exhibit A

Proposed License Articles

Ordering Paragraphs

- (A) The Settlement Agreement Concerning the Relicensing of the Clackamas River Hydroelectric Project, filed with the Commission on November 30, 2005, (the "Settlement Agreement"), including the exhibits attached thereto, is hereby approved and adopted.
- (B) The following License Implementation Plans are approved and made a part of this license:
 - (1) Project Operating Plan, Exhibit C to the Settlement Agreement, filed March __, 2006;
 - (2) Fish Passage and Protection Plan, Exhibit D to the Settlement Agreement, filed March __, 2006;
 - (3) Terrestrial Resources Management Plan, Exhibit E-1 to the Settlement Agreement, filed March __, 2006;
 - (4) Vegetation Management Plan, Exhibit E-2 to the Settlement Agreement, filed March __, 2006;
 - (5) Blue-Green Algae Monitoring Plan, Exhibit F to the Settlement Agreement, filed March __, 2006;
 - (6) Recreation Resources Management Plan, Exhibit G to the Settlement Agreement, filed March __, 2006;
 - (7) Clackamas Fund Implementation Plan, Exhibit H to the Settlement Agreement, filed March __, 2006;
 - (8) Historic Properties Management Plan, Exhibit J to the Settlement Agreement, filed March __, 2006;
- (C) This license is subject to the conditions submitted by the State of Oregon Department of Environmental Quality under Section 401 of the Clean Water Act, as those conditions are set forth in Appendix [A] to this order.
- (D) This license is subject to the conditions submitted by the Secretary of the U.S. Department of the Interior under section 18 of the FPA, as set forth in Appendix [B] to this order.
- (E) This license is subject to the conditions submitted by the Secretary of the U.S. Department of Commerce under section 18 of the FPA, as set forth in Appendix [C] to this order.
- (F) This license is subject to the U.S. Forest Service's conditions filed pursuant to section 4(e) of the FPA, as set forth in Appendix [D] to this order.
- (G) This license is subject to the Bureau of Land Management's conditions filed pursuant to section 4(e) of the FPA, as set forth in Appendix [E] to this order.

- (H) This license is issued to PGE (Licensee) to operate and maintain the Clackamas Project for a period of 45 years, effective the first day of the month in which this order is issued; provided, if the 3,000 cfs surface collector is installed as provided in this license, the Licensee may request the Commission to extend the license term by five years. The license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

General Provisions

Article 1. Implementation Committees

- (a) The Licensee shall establish a Fish Committee as provided in the Settlement Agreement. The Fish Committee shall consist of the Licensee; National Marine Fisheries Service (NOAA Fisheries Service); U.S. Fish and Wildlife Service (USFWS); U.S. Forest Service (USDA-FS); Confederated Tribes of the Warm Springs Reservation of Oregon (CTWS); Confederated Tribes of the Grand Ronde Community of Oregon (CTGR); Confederated Tribes of Siletz Indians of Oregon (CTSI); Oregon Department of Fish and Wildlife (ODFW); Oregon Department of Environmental Quality (ODEQ), Clackamas River Basin Council; Association of Northwest Steelheaders; and one representative of the following non-governmental organizations: Trout Unlimited, American Rivers, Oregon Trout, and the Native Fish Society. The Licensee's development and implementation of study plans, reports, facility designs, and operating and implementation plans submitted to the Fish Committee pursuant to the terms of this license shall comply with the requirements of the Settlement Agreement unless otherwise directed by the Commission. The Licensee's implementation of measures pursuant to this license shall be reported to the Fish Committee as provided in the Settlement Agreement and the applicable License Implementation Plan. The Licensee shall provide copies of all filings with the Commission following consultation with the Fish Committee to each member of the Fish Committee.
- (i) Unless a different time period is specifically established pursuant to another provision of this License, the Licensee shall, where consultation with the Fish Committee is required, allow a minimum of 30 days for the Fish Committee members to comment, work to achieve consensus, and to make recommendations before the Licensee files any study, operating or implementation plan, report, or facility design with the Commission. Where consultation regarding a study, operating, or implementation plan, report, or facility design is required, the Licensee shall provide the Fish Committee with a copy of the draft study, operating, or implementation plan, report, or facility design and all data gathered during development of that draft study, operating, or implementation plan, report, or facility design. During the consultation period the Licensee shall convene at least one meeting of the Fish Committee to discuss the draft study, operating, or implementation plan, report, or facility design. If any member of the Fish Committee has not provided comments or recommendations within 30 days, as such time period may be extended by the Licensee on request of a member of the Fish

Committee, the Licensee may file such study, operating or implementation plan, report or facility design with the Commission upon completing consultation with other Fish Committee members and other approval requirements, if applicable. If after consideration by the Fish Committee of all comments or recommendations, consensus is not achieved regarding the study, operation or implementation plan, report, or facility design, and any member of the Fish Committee invokes dispute resolution pursuant to Section 7.5 of the Settlement Agreement, the Licensee shall not file any such study, operating or implementation plan, report, or facility design with the Commission until the dispute resolution process has been completed, unless otherwise directed by the Commission. The Licensee shall notify the Commission of the dispute if the dispute resolution process is invoked by any party. The Licensee shall include with the study, operation or implementation plan, report, or facility design: documentation of consultation with the Fish Committee, copies of committee member comments and recommendations on the study, operation or implementation plan, report, or facility design after it has been prepared and provided to the Fish Committee, and specific descriptions of how the comments are accommodated by the study, operating or implementation plan, report, or facility design. If the Licensee does not adopt a recommendation or comment, the filing shall include the Licensee's reasons, based on project-specific information.

- (ii) NOAA Fisheries, USFWS, and ODFW are collectively referred to as the Fish Agencies. Each Fish Agency has separate and distinct statutory authorities and no agency is deemed, by virtue of concurrent approvals, to be sharing its statutory authority with any other agency or to be conceding that the approval of any other agency is required for exercise of the first agency's authority. Where consultation with the Fish Committee and approval by the Fish Agencies pursuant to their respective statutory authorities is required, the Licensee shall allow the Fish Agencies a minimum of 30 days to provide such approval prior to submitting the final study, operating or implementation plan, report, or facility design with the Commission. Unless otherwise directed by the Commission, the Licensee shall, if requested by any agency with approval authority, grant an extension of up to 30 days of the time in which to provide such approval. If any Fish Agency has not provided its approval or disapproval within 30 days, as such time period may be extended by the Licensee upon request of a Fish Agency, the Licensee may file such study, operating or implementation plan, report or facility design with the Commission. If a Fish Agency disapproves a study, operating or implementation plan, report, or facility design, the Licensee shall not file the disapproved study, operating or implementation plan, report, or design with the Commission until the dispute resolution process specified in section 7.5 of the Settlement Agreement has been completed, unless otherwise directed by the Commission or if the matter in dispute was addressed pursuant to section 4.3.2 of the Settlement Agreement, in which case no further dispute resolution shall be required before such study, operating or implementation plan, report, or design is filed with the Commission.
- (b) The Licensee shall establish a Terrestrial Resources Work Group as provided in the Settlement Agreement. The Terrestrial Resources Work Group shall consist of the Licensee; USFWS; USDA-FS; BLM; NOAA Fisheries; ODFW, CTWS, CTGR, and CTSI. The Licensee's development and implementation of study plans, reports, facility

designs, and operating and implementation plans submitted to the Terrestrial Resources Work Group pursuant to the terms of this license shall comply with the requirements of the Settlement Agreement unless otherwise directed by the Commission. Unless a different time period is specifically established pursuant to another provision of this License, the Licensee shall, where consultation with the Terrestrial Resources Work Group is required, allow a minimum of 30 days for the Terrestrial Resources Work Group members to comment on drafts, work to achieve consensus, and to make recommendations before filing any study, operating or implementation plan, report, or facility design with the Commission. If any member of the Terrestrial Resources Work Group has not provided comments or recommendations within 30 days, as such time period may be extended by the Licensee upon request of a member of the Terrestrial Resources Work Group, the Licensee may file such study, operating or implementation plan, report or facility design with the Commission. If after consideration by the Terrestrial Resources Work Group of all comments or recommendations, consensus is not achieved regarding the study, operating or implementation plan, report, or facility design, and any member of the Terrestrial Resources Work Group invokes dispute resolution pursuant to Section 7.5 of the Settlement Agreement, the Licensee shall not file any such study, operating or implementation plan, report, or facility design with the Commission until the dispute resolution process has been completed, unless otherwise directed by the Commission. The Licensee shall notify the Commission of the dispute if the dispute resolution process is invoked by any party. The Licensee shall include with the study, operating or implementation plan, report, or facility design: documentation of consultation with the Work Group, copies of comments and recommendations by Work Group members, and specific descriptions of how the comments and recommendations are accommodated by the study, operating or implementation plan, report, or facility design. If the Licensee does not adopt a recommendation or comment, the filing shall include the Licensee's reasons, based on project-specific information.

- (c) The Licensee shall establish a Recreation Resources Work Group as provided in the Settlement Agreement. The Recreation Resources Work Group (RRWG) shall consist of the Licensee; USDA-FS; BLM; ODFW; Oregon Parks and Recreation Department (OPRD); Oregon State Marine Board; CTWS; CTSI; CTGR; City of Estacada, and such recreational users that are party to the Settlement Agreement that request membership on the RRWG. The Licensee's development and implementation of study plans, reports, facility designs, and operating and implementation plans submitted to the Recreation Resources Work Group pursuant to the terms of this license shall comply with the requirements of the Settlement Agreement unless otherwise directed by the Commission. Unless a different time period is specifically established pursuant to another provision of this License, the Licensee shall, where consultation with the Recreation Resources Work Group is required, allow a minimum of 30 days for the Recreation Resources Work Group members to comment on drafts, work to achieve consensus, and to make recommendations before filing any such study, operating or implementation plan, report, or facility design with the Commission. If any member of the Recreation Resources Work Group has not provided comments or recommendations within 30 days, as such time period may be extended by the Licensee upon request of a member of the RRWG, the Licensee may file such study, operating or implementation

plan, report or facility design with the Commission. If after consideration by the Recreation Resources Work Group of all comments or recommendations, consensus is not achieved regarding the study, operating or implementation plan, report, or facility design, and any member of the Recreation Resources Work Group invokes dispute resolution pursuant to Section 7.5 of the Settlement Agreement, the Licensee shall not file any such study, operating or implementation plan, report, or facility design with the Commission until the dispute resolution process has been completed, unless otherwise directed by the Commission. The Licensee shall notify the Commission of the dispute if the dispute resolution process is invoked by any party. The Licensee shall include with the study, operating or implementation plan, report, or facility design: documentation of consultation with the Work Group, copies of comments and recommendations by Work Group members, and specific descriptions of how the comments and recommendations are accommodated by the study, operating or implementation plan, report, or facility design. If the Licensee does not adopt a recommendation or comment, the filing shall include the Licensee's reasons, based on project-specific information.

- (d) The Licensee shall establish a Blue-Green Team as provided in the Settlement Agreement. The Blue-Green Team shall consist of the Licensee; USDA-FS; ODEQ; CTWS; CTSI; CTGR; and two representatives of the Clackamas River Water Providers. The Licensee's development and implementation of study plans, reports, facility designs, and operating and implementation plans submitted to the Blue-Green Team pursuant to the terms of this license shall comply with the requirements of the Settlement Agreement unless otherwise directed by the Commission. Unless a different time period is specifically established pursuant to another provision of this License, the Licensee shall, where consultation with the Blue-Green Team is required, allow a minimum of 30 days for the Blue-Green Team members to comment on drafts, work to achieve consensus, and to make recommendations before filing any such study, operating or implementation plan, report, or facility design with the Commission. If any member of the Blue-Green Team has not provided comments or recommendations within 30 days, as such time period may be extended by the Licensee upon request of a member of the Blue-Green Team, the Licensee may file such study, operating or implementation plan, report or facility design with the Commission upon completing consultation with other Blue-Green Team members and other approval requirements, if applicable. If after consideration by the Blue-Green Team of all comments or recommendations, consensus is not achieved regarding the study, operating or implementation plan, report, or facility design, and any member of the Blue-Green Team invokes dispute resolution pursuant to Section 7.5 of the Settlement Agreement, the Licensee shall not file any such study, operating or implementation plan, report, or facility design with the Commission until the dispute resolution process has been completed, unless otherwise directed by the Commission. The Licensee shall notify the Commission of the dispute if the dispute resolution process is invoked by any party. The Licensee shall include with the study, operating or implementation plan, report, or facility design: documentation of consultation with the Blue-Green Team, copies of comments and recommendations by Blue-Green Team members, and specific descriptions of how the comments and recommendations are accommodated by the study, operating or implementation plan, report, or facility design. If the Licensee does

not adopt a recommendation or comment, the filing shall include the Licensee's reasons, based on project-specific information.

- (e) The Licensee shall establish the Clackamas Fund Committee as provided in the Clackamas Fund Implementation Plan, Exhibit [H] to the Settlement Agreement. The Clackamas Fund Committee shall be comprised of fifteen signatories to the Settlement Agreement, including one representative or designee from the following agencies or organizations: Licensee; CTGR; CTSI; CTWS; USFWS; NOAA Fisheries Service; USDA-FS; BLM; ODFW; ODEQ; OWRD; Clackamas River Basin Council; Water Providers (Clackamas River Water, Sunrise Water Authority, South Fork Water Board, North Clackamas County Water Commission, Oak Lodge Water District (one representative collectively)); Northwest Steelheaders; and non-governmental organizations (American Rivers, Oregon Trout, Trout Unlimited, Native Fish Society, WaterWatch of Oregon (one representative collectively)).

Article 2. Inspection of Project

The Licensee shall allow parties to the Settlement Agreement access to, through, and across Clackamas River Hydroelectric Project lands and works for the purpose of inspecting facilities and records, including monitoring data, to ensure compliance with this license, and with the Settlement Agreement. The Licensee shall allow such inspections only after the entity requesting the inspection provides the Licensee reasonable notice of such inspections and agrees to follow the Licensee's standard safety and security procedures when engaged in such inspections.

Article 3. Emergency or Special Conditions

- (a) If at any time, unanticipated circumstances or emergency situations arise in which Endangered Species Act (ESA) listed fish or wildlife are being killed, harmed or endangered by any of the project facilities or as a result of project operation, including the operation of fish facilities, the Licensee shall immediately take appropriate action to prevent further loss in a manner that does not pose a risk to human life, limb, or property. The licensee shall, within 6 hours, notify the nearest office of the following resource agencies: Oregon Department of Fish and Wildlife (ODFW), National Marine Fisheries Service (NOAA Fisheries Service), and U.S. Fish and Wildlife Service (USFWS). The Licensee shall comply with any restorative measures required by the resource agencies to the extent such measures do not conflict with the conditions of this license. Within 10 days after each occurrence, the Licensee shall file with the Commission and the resource agencies a written report describing the nature of the occurrence and restorative measures taken. The Licensee shall provide a copy of the report to the Fish Committee, Oregon Department of Environmental Quality (ODEQ), and Oregon Water Resources Department (OWRD).
- (b) If at any time, unanticipated circumstances or emergency situations arise in which non-ESA listed fish or wildlife are being killed, harmed or endangered by any of the project facilities or as a result of project operation, the licensee shall immediately take appropriate action to prevent further loss in a manner that does not pose a risk to human life, limb, or property. The Licensee shall, within 48 hours, notify the nearest office of

the ODFW, NOAA Fisheries Service, and USFWS, as appropriate, and comply with any restorative measures required by the resource agencies to the extent such measures do not conflict with the conditions of this license. Within 10 days after each occurrence, the Licensee shall file with the Commission and the resource agencies a written report describing the nature of the occurrence and restorative measures taken. The Licensee shall provide a copy of the report to the Fish Committee, ODEQ and OWRD.

Article 4. Activities on National Forest System Lands

- (a) If additional National Forest System (NFS) lands of the USDA Forest Service (USDA-FS) are included within the Project boundary of the license, the Licensee shall obtain from the USDA-FS a special use authorization for occupancy and use of such lands. Additional lands authorized by the USDA-FS for use by the Licensee shall be subject to laws, rules, and regulations applicable to the NFS. The terms and conditions of the USDA-FS special use authorization are enforceable by the USDA-FS under the laws, rules and regulations applicable to the NFS. The special use authorization also shall be subject to applicable sanctions and enforcement procedures of the Commission at the request of the USDA-FS.
- (b) The Licensee shall not make changes in the location of any constructed Project features or facilities located on NFS lands, or make any departure from the requirements of any approved exhibits authorizing use or occupancy of NFS lands filed with the Commission and authorized by the new license as issued and amended before receiving comments from the USDA-FS and approval from the Commission. Following receipt of such comments from the agency, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission and with USDA-FS, describing the changes, the reasons for the changes, and showing the comments of the agency for such changes.
- (c) After consultation with the USDA-FS and before starting any activity on NFS land that USDA-FS determines may affect another federally authorized activity on those lands, the Licensee shall participate with USDA-FS in attempting to resolve any potential conflicts with representatives of those authorized activities.
- (d) Prior to undertaking activities on NFS lands that are required by plans analyzed and approved in this license, the Licensee shall obtain written approval from the USDA-FS for all final design and construction plans and associated surveys. Final construction plans shall include measures that address minimization of construction impacts, fire protection and other appropriate public safety measures.
- (e) The Licensee shall prepare site-specific plans for comment by USDA-FS and Commission approval for habitat-disturbing and ground-disturbing activities on NFS lands required by the license, including activities contained within resource management plans required by the license that are not analyzed or approved by this license pursuant to the preceding paragraph. The Licensee shall prepare such site-specific plans as provided in this license. The Licensee shall include in such site-specific plans the following:
 - (i) A map depicting the location of the proposed habitat or ground-disturbing activity.

- (ii) A description of the land management area designation for the location of the proposed activity and applicable standards and guidelines.
- (iii) A description of alternative locations, designs, mitigation measures considered (if any).
- (iv) Hazardous material storage and spill prevention and cleanup measures, fire prevention and suppression measures, identification of potential hazard areas and measures necessary to protect public safety, measures for disposal and/or storage of waste soil and/or rock materials (spoils) measures generated by road maintenance, slope failures and construction projects and erosion control measures, and implementation and effectiveness monitoring designed to meet applicable standards and guidelines.
- (v) Data collected from surveys, biological evaluations or consultation as required by regulations applicable to ground or habitat disturbing activities on NFS lands in existence at the time the plan is prepared, provided that the handling and confidentiality accorded cultural resource data shall be consistent with the requirements of the Historic Properties Management Plan, Exhibit J to the Settlement Agreement.
- (vi) Any environmental analysis of the proposed action that meets USDA-FS requirements for implementing the National Environmental Policy Act (NEPA) in existence at the time the plan is prepared.
- (f) The Licensee shall conduct or fund any additional environmental analysis deemed necessary by the USDA-FS for site-specific plans including, but not limited to, scoping, site-specific resource analysis, and cumulative effects analysis sufficient to meet the criteria set forth in USDA-FS regulations for NEPA in existence at the time the process is initiated. The Licensee may refer to or rely on any previous NEPA analysis for the activity to the extent the analysis is currently applicable, as determined by USDA-FS. Following scoping, the Licensee shall submit the scope of work for the environmental analysis, including, but not limited to, the range of alternatives that shall be addressed, to USDA FS for review and approval prior to completion of the environmental analysis.

Article 5. Escalation of Costs

Unless otherwise indicated, all costs or payment amounts specified in dollars shall be deemed to be stated as of the year 2006, and the Licensee shall escalate such sums as of September 1 of each following year (starting in September 2006) according to the following formula:

$$AD = D \times \frac{(NGDP)}{IGDP}$$

WHERE:

AD = Adjusted dollar amount as of September 1 of the year in which the adjustment is made.

D = Dollar amount prior to adjustment.

IGDP = GDP-IPD for the second quarter of the year before the previous adjustment date (or, in the case of the first adjustment, the second quarter of the year before the Effective Date).

NGDP = GDP-IPD for the second quarter of the year before the adjustment date.

“GDP-IPD” is the value published for the Gross Domestic Product Implicit Price Deflator by the U.S. Department of Commerce, Bureau of Economic Analysis in the publication *Survey of Current Business*, Table 7.1 (being on the basis of 2000 = 100), in the third month following the end of the applicable quarter. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted by the agreement of the agency and the Licensee. If the base year for GDP-IPD is changed or if publication of the index is discontinued, the Licensee shall promptly make adjustments or, if necessary, select an appropriate alternative index acceptable to the agency to achieve the same economic effect.

Operating Conditions

Article 6. Operation of Timothy Lake

(a) Seasonal Drawdowns

- (i) The Licensee shall refill Timothy Lake to elevation 3189.0, PGE datum, by Memorial Day, and to elevation 3190 by July 1 if sufficient inflow is available consistent with required minimum releases pursuant to paragraph (b) of this Article. The Licensee may refill Timothy Lake to higher elevations, not to exceed elevation 3191.5, as are consistent with required minimum releases pursuant to paragraph (b) of this Article.
- (ii) The Licensee may draw Timothy Lake down by not more than 1.5 feet between Memorial Day and Labor Day, subject to the following limitations:
 - (1) The Licensee shall not draw Timothy Lake below elevation 3190.0 before August 1, which date may be modified pursuant to paragraph (a)(v) of this article, and
 - (2) The Licensee shall not draw Timothy Lake below elevation 3189.0 at any time before the day after Labor Day.
- (iii) Subject to the limitations in paragraphs (b) and (c) below, the Licensee may draw Timothy Lake down to a normal minimum elevation of 3170.0 between the day after Labor Day and the day before Memorial Day. Between the day after Labor Day and the day before Memorial Day, the surface of Timothy Lake shall not exceed elevation 3191.9.
- (iv) Subject to the limitations in paragraphs (b) and (c) below, the Licensee may draw Timothy Lake down to an extreme minimum of 3125.0 between the day after Labor Day and the day before Memorial Day, during the following extraordinary situations: (1) drawdown needed for safe passage of anticipated flood flows to minimize damage to life and property; (2) drawdown required to complete repairs on Project facilities (including spillway gates, the intake structures, or other dam structures); and (3) power emergencies, as defined in the Western States

Coordinating Council Minimum Operating Reliability Criteria (March 8, 1999), as such criteria may be amended during the license term.

(v) If the Licensee’s monitoring of amphibian populations pursuant to the Terrestrial Resource Management Plan implemented pursuant to Article [50], demonstrates that drawdowns below elevation 3190.0 between August 1 and 15 are adversely affecting such populations, the Licensee shall not draw Timothy Lake below elevation 3190.0 before August 15.

(vi) If at any time between Memorial Day and Labor Day, the elevation of Timothy Lake falls below elevation 3189.0, Licensee shall conduct monitoring of cultural sites pursuant to the Historic Properties Management Plan, and of sensitive plant populations pursuant to the Terrestrial Resources Management Plan.

(b) *Flows below Timothy Lake*

(i) The Licensee shall maintain the following flows below Timothy Lake:

Date	Flow Release, cfs	
	Minimum	Maximum
Memorial Day through Labor Day	60 cfs or inflow, whichever is less	Inflow + 70
Day after Labor Day through Sept 30		Inflow + 100
Oct. 1 through Oct 31		Inflow + 150
Nov. 1 through Nov 30		Inflow +300
Dec. 1 through Feb. 28/29	30 cfs or inflow, whichever is less	
Mar. 1 through day before Memorial Day	40 cfs or inflow, whichever is less	Inflow +100

(ii) During the period from November 1 through February 28/29, the Licensee shall operate Timothy Lake to allow no more than three large-scale flow events, defined as a day or series of consecutive days in which Timothy Lake outflow exceeds inflow by 200 cfs or more. This limitation shall not apply during system power emergencies or equipment failures at Timothy Lake Dam.

(c) *Stage Change Limits*

(i) The Licensee shall measure ramping rates below Timothy Lake at the United States Geological Survey (USGS) Government Camp gage (USGS #14208700), using the most recent USGS rating tables for flow measurement.

(ii) The Licensee shall operate the project with the following limits for stage changes below the Timothy Lake development, except during certain extraordinary conditions, including: (1) anticipated flood events; (2) any event that triggers the Project Emergency Action Plan; (3) rapid changes in Timothy Lake inflows, when the rate of inflow change exceeds the stage change limits; (4) periods when flow must be passed through the tainter (spillway) gates because flows exceed the capacity of the Howell Bunger valve; and (5) equipment failures or emergencies at the project facilities. During such extraordinary conditions, the Licensee may deviate from these stage change limits, but shall attempt to minimize the frequency and duration of events when the stage change rate exceeds these limits. If the stage change limits are so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

(1) Decreases in stream stage at the USGS Government Camp gage shall not exceed 0.2 ft in any 1 hour period year-round.

(2) Increases in stream stage at the Government Camp gage shall not exceed 0.2 ft in any one hour period except during days associated with inflow events that result in average daily inflows to Timothy Lake exceeding 600 cfs.

(iii) To monitor compliance with this requirement, the Licensee shall record the time and stage change at the USGS Government Camp gage and shall report any stage changes that are greater than the stage change limitations identified above to the Fish Committee and the Commission.

(d) ***Flow Monitoring and Studies***

The Licensee, in consultation with USGS, shall improve monitoring of USGS Government Camp gage flows by providing satellite telemetry to the USGS gage to access real time data. Within 24 months of license issuance, the Licensee, in consultation with USGS, shall conduct a gaging study below Timothy Lake Dam to establish the relationship between flows immediately below the dam and the USGS gage. Such study shall measure the contribution of accretion flows to readings at the USGS Government Camp gage.

Article 7. Lake Harriet Dam Flow Release System

The Licensee shall construct, operate and maintain a system for providing baseflow releases below Lake Harriet Dam. Within six months of license issuance, the Licensee shall file for Commission approval a plan and schedule to provide flow releases below Lake Harriet Dam. The plan shall include a description of a flow release system, which shall include a base flow release facility, and a pulse-flood flow release system capable of releasing the flows required pursuant to Article [8]. The base flow facility will consist of a pipe tap at the downstream portal of the Frog Lake tunnel, leading to a flow control valve and base-flow pipeline. The base flow pipeline will extend to the Oak Grove Fork at a location near the Crack in the Ground site. The system will be sized and designed to accurately release flows in the range of 70 to 100 cfs. The pulse-flood flow release system will consist of a new sharp-crested weir constructed as part of the flashboards at the crest of Harriet Dam and will be used to release flows above the capacity of the base flow system. The base flow release system will include provisions for aerating the

flow released from the control valve, to ensure that the water entering the OGF from the flow release system will be near 100% saturation (100% total dissolved gas level, at atmospheric pressure). The base flow facility will include an energy dissipating structure downstream of the control valve that creates significant turbulence and shear in the flow path in order to limit the passage of live fish that pass through the base flow facility. The licensee shall prepare the plan and schedule after consultation with the USDA-FS and the Fish Committee. Upon Commission approval, the Licensee shall implement the plan.

Article 8. Operation of Lake Harriet Dam

(a) Lake Levels

- (i) The Licensee shall maintain the water level in Lake Harriet at a reservoir elevation of 2039.0, PGE datum, except during spills or releases over the dam flashboards, when water levels will exceed 2039.0; during replacement of flashboards, when the minimum water level shall be elevation 2034.0, PGE datum; or during major repairs of Lake Harriet Dam or the Frog Lake intake structure, when the minimum water level shall be elevation 2020.0.

(b) Flows Below Lake Harriet

- (i) Within six months of license issuance, the Licensee shall file with the Commission, for approval, a protocol for determining forecasted April 1 to September 1 inflows to Lake Harriet in order to determine whether the year will be “wet,” “normal,” or “dry” as defined in the following table. The protocol will be developed in consultation with the Fish Committee and the United States Geological Survey. Upon Commission approval, the Licensee shall implement the protocol. Prior to Commission approval, the Licensee shall release the baseflow and snowmelt runoff flows appropriate to a “normal” water year
- (ii) The Licensee shall operate Lake Harriet Dam to provide the following baseflows, winter flood flows, and snowmelt runoff flows:

(1) Base Flow Releases

Date	Base Flow Release, cfs		
	Wet Year	Normal Year	Dry Year
April 1 to September 30	100	90	80
Oct. 1 to Oct. 15	100	100	100
Oct. 16 to Dec. 15	80	80	80
Dec. 16 to March 31	70	70	70

Definition of Wet, Normal, and Dry Water Years	
	Forecasted April 1-September 30 Inflows to Lake Harriet
Wet	>182,000 acre-ft
Normal	<182,000 acre-ft and >123,000 acre-ft
Dry	<123,000 acre-ft

- (2) *Fall Pulse Flow Releases:* If a member of the Fish Committee presents information to the Licensee demonstrating a need for fall pulse flow releases, the Licensee shall, in consultation with the Fish Committee, determine whether to file a plan with the Commission to reduce summer base flows in order to provide such fall pulse flow releases. After consultation with the Fish Committee, and with the approval of ODEQ, the Licensee shall file the plan and schedule with the Commission. Upon Commission approval, the Licensee shall implement any proposed fall pulse flow releases.
- (3) *Winter Flood Flow Releases:* Between January 1 and March 31, the Licensee shall operate Harriet Dam to pass all instantaneous peak flows greater than 1,300 cfs for approximately 10 hours and then resume the 600 cfs diversion to Frog Lake. The Licensee shall pass such peak flows by shutting down the Frog Lake flowline diversion for approximately 10 hours (creating a “full spill event”) to allow all flow to pass to the lower Oak Grove Fork, once instantaneous inflows to Lake Harriet exceed 1,300 cfs, as estimated based on the sum of flows in the Frog Lake pipeline, the base flow release, and spill at Harriet Dam. In any year that has more than four high flows events greater than 1,300 cfs at least 5 days apart, the Licensee will operate Lake Harriet to allow full spill events for the first four events of the year during the period from January 1 to March 31. After the first four full spill events occur, the Frog Lake flowline diversion may continue at a 600 cfs diversion for all additional flow events greater than 1,300 cfs. If spinning reserve is called upon during the approximately 10-hour “full spill event” period, diversions can be resumed as soon as possible and the full spill event ended. The Licensee shall begin the winter flood protocol described above in any month from October through January, if it receives a request to do so from the Fish Committee no later than December 31 of the calendar year prior to the year in which the modified winter flood protocol is to be implemented.

(4) *Snowmelt Runoff Releases:* The Licensee shall release the following flows from Harriet Dam to simulate flows that occur during snowmelt runoff events:

- (a) For WET water years, the peak flow release will be 150 cfs for 54 days, then ramping down to baseflows by 10 cfs/day.
- (b) For NORMAL water years, the peak flow release will be 250 cfs for 3 days, ramping down at 20 cfs/day to 150 cfs, then ramping down to baseflows by 10 cfs/day.
- (c) For DRY water years, the peak flow release will be 200 cfs for 3 days, ramping down by 20 cfs/day to 150 cfs, then ramping down to baseflows at 10 cfs/day.

The Licensee may begin a snowmelt runoff event any time from April 20 to May 15, triggered by or in anticipation of natural snowmelt runoff. If no significant natural snowmelt release has occurred by May 14, the Licensee shall begin the snowmelt release May 15. If spill events that are greater than the release requirement occur during the snowmelt release, the Licensee may make full diversions to Frog Lake until the natural flow, less the diversion to Frog Lake, matches the release requirement at the point when the increased diversion to Frog Lake began, after which the Licensee shall adjust diversions to continue to match the snowmelt release requirement stated above.

Article 9. Gaging in Oak Grove Fork

Within 12 months of license issuance, the Licensee, after consultation with the USGS and the Fish Committee, shall file a plan and schedule for Commission approval to: (1) fund work by the USGS as needed to replace and maintain for the term of the license the gage on the Oak Grove Fork above Lake Harriet with a new gage to be located in the vicinity of the Ripplebrook Campground. The plan shall include an implementation schedule and provisions to install data acquisition equipment, recording hardware and software as needed to calculate inflows on a timely basis and to document the inflow record. Upon Commission approval, the Licensee shall implement the plan.

Article 10. Frog Lake Spillway Monitoring

The Licensee shall implement the following measures to improve monitoring of the stability of the Frog Lake Spillway:

- (i) Not later than March 31 of each year, the Licensee shall provide USDA-FS with a copy of stability monitoring data for the Oak Grove Development, as well as a copy of any geotechnical reports prepared during the preceding calendar year;
- (ii) The Licensee shall install a deep slope indicator in the large berm below the end of the excavated channel, if the threshold level of slide movement of one-quarter inch

in 1-year, or 0.35 inches cumulative movement over a 3-year period is exceeded in any one of the existing deep inclinometers at Frog Lake;

- (iii) Within one year of license issuance, the Licensee shall install a survey monument in the large berm area where the deep slope indicator would be installed; and
- (iv) Within one year of license issuance, the Licensee shall, after consultation with USDA-FS, file with the Commission, for approval, a remediation plan for surface erosion and vegetation in the event of a flow release from the Frog Lake Spillway. Upon Commission approval, the Licensee shall implement the plan.

Article 11. Operation of Frog Lake and Oak Grove Powerhouse

(a) Frog Lake Lake Levels

The Licensee shall operate Frog Lake between a maximum elevation of 1988.0, PGE datum, and an extreme minimum elevation of 1958.0.

(b) Ramping Rates Below Oak Grove Powerhouse

- (i) The Licensee shall measure ramping rates below the Oak Grove Powerhouse at the Clackamas River Three Lynx gage, USGS Gage No. 14209500.
- (ii) The Licensee shall not exceed an up-ramping rate of 0.40 ft below the Oak Grove Powerhouse in any one hour period, except during spinning reserve call events.
- (iii) The Licensee shall not exceed the following down-ramping rates below the Oak Grove Powerhouse:

Date	Down-ramp, ft in any one-hour period
Nov. 1 through Jan. 31	0.3
Feb. 1 through Sept. 30	0.3 if flow \geq 1200 cfs 0.17 if flow < 1200 cfs
Oct. 1 to Oct. 31	0.3

- (iv) If the monitoring of the risk of stranding juvenile salmonids below the Oak Grove Powerhouse during October conducted pursuant to Article [38] shows that unacceptable stranding occurs during October, the Licensee shall reduce the down-ramping rate to 0.17 ft in any one-hour period for flows less than 1200 cfs.

Article 12. Operation of North Fork Reservoir and Dam

(a) Lake Levels

The Licensee shall operate North Fork Reservoir between a minimum elevation of 660.0, PGE datum, and a maximum elevation of 665.0 ft. The Licensee may draw North Fork Reservoir down to elevation 640.0 during the following extraordinary situations: (1) drawdown needed for safe passage of anticipated flood flows to minimize damage to life and property; (2) drawdown required to complete repairs on Project facilities (including spillway gates, the intake structures, or other dam structures); and (3) power emergencies, as defined in the Western States Coordinating Council Minimum Operating Reliability Criteria (March 8, 1999), as such criteria may be amended from time to time.

(b) Generation Limits at North Fork Powerhouse until Surface Collector is in Operation

Starting when the spillway exclusion net upstream of the North Fork spillway is in place and the Licensee has demonstrated the net’s effectiveness as provided in Article [32], and continuing until the 1000-cfs surface collector is in operation in the North Fork forebay, the Licensee shall limit generation flow at the North Fork Powerhouse to 3500 cfs when flows in the Clackamas River at the North Fork Dam are between 3500 and 7500 cfs. When river flows exceed 7500 cfs, the Licensee will maintain a spill flow of 4000 cfs and adjust generation flows up to the generating capacity of the powerhouse. The Licensee will implement these limitations until the 1000-cfs surface collector is in operation, unless studies are being conducted. If studies are being conducted that would be adversely affected by spill flows at North Fork, the Licensee shall consult with the Fish Committee and obtain the approval of the Fish Agencies for a temporary modification of the spill protocol while such studies are in progress.

North Fork Generation Limitations Prior to Completion of 1000-cfs Surface Collector:

Start Date	End Date
Earlier of April 15 or the first date on which the 5-day average Chinook count \geq 50.	Later of May 31 or the date on which the 5-day average Chinook count drops below 50.
Earlier of November 1 or the first date on which the 5-day average Chinook count \geq 50.	Later of December 15 or the date on which the 5-day average Chinook count drops below 50.
The 5-day average downstream count will be determined based on the total (or expanded, if subsampled) Chinook count at the North Fork downstream counting facility.	

(c) Generation Limits at North Fork Powerhouse after Surface Collector is in Operation

After the 1,000 cfs surface collector has been constructed and is operational in the North Fork forebay, the Licensee will limit generation flow at the North Fork powerhouse to 3500 cfs when flows in the Clackamas River at the North Fork Dam are between 3500 and 7500 cfs from April 1 through June 30, and from October 15 through December 31, when studies are not being conducted. If studies are being conducted that would be adversely affected by spill flows at North Fork, the Licensee shall consult with the Fish

Committee and obtain the approval of the Fish Agencies for a temporary modification of the spill protocol while such studies are in progress. The generation limitation will remain in effect until the Licensee has demonstrated through effectiveness monitoring pursuant to Article [32] that overall Project smolt survival will not be diminished by discontinuing the generation limitation.

Article 13. Faraday Diversion Dam and Reservoir

(a) Lake Levels

The Licensee shall operate Faraday Diversion Dam Reservoir between a normal minimum elevation of 521.0, msl, and a maximum elevation of 526.0. msl. The Licensee may draw Faraday Diversion Dam Reservoir down to an extreme minimum of 516.0, msl, during the following extraordinary situations: (1) drawdown needed for safe passage of anticipated flood flows to minimize damage to life and property; (2) drawdown required to complete repairs on Project facilities (including spillway gates, the intake structures, or other dam structures); and (3) power emergencies, as defined in the Western States Coordinating Council Minimum Operating Reliability Criteria (March 8, 1999), as such criteria may be amended during the license term.

(b) Flows Below Faraday Diversion Dam

The Licensee shall install, operate, and maintain a minimum flow release valve that will enable the Licensee to provide the following flows below the Faraday Diversion Dam. Within 6 months of license issuance, the Licensee shall file with the Commission for approval a design and schedule for a new minimum flow release valve that will enable the Licensee to operate the Faraday Diversion Dam to provide the following base flows below the Faraday Diversion Dam. The schedule will provide that the design will be implemented within one year of Commission approval. Upon Commission approval, the Licensee shall implement the design. Upon completion of implementation, the Licensee shall release the following flows below Faraday Diversion Dam:

Base Flow Releases		
Date	Base Flow release, cfs	Notes
Year-round	270 (subject to state instream water right)	Starting in the eighth year after license issuance, the Licensee may reduce base flow to 250 cfs, if the Licensee demonstrated, during the preceding year, that spillway entrainment of juvenile steelhead was reduced by at least 50% by the spillway exclusion net at spills up to 4,000 cfs.

The Licensee shall provide the following additional flows mandated by State instream water right:

Date	Release to Faraday Diversion Reach*
July 1 – Sept. 15	As flows above Faraday Diversion Dam increase above 5290 cfs, moving to 5270 cfs if the condition above in the table is met, the Licensee shall increase flow in the Faraday Diversion Reach until it reaches 400 cfs. As flows above Faraday Diversion Dam increase above 5420cfs, additional flows will be routed through the Faraday Powerhouse
Sept. 16 – June 30	As flows above Faraday Diversion Dam increase above 5290cfs, moving to 5270 cfs if the condition above in the table is met, the Licensee shall increase flow in the Faraday Diversion Reach until it reaches 640 cfs. As flows above Faraday Diversion Dam increase above 5660 cfs, additional flows will be routed through the Faraday Powerhouse.

(c) Pulsed Flows Below Faraday Diversion Dam

Between April 1 and October 31, the Licensee shall provide pulsed flows of between 120 and 480 cfs, in addition to the base flows described above, at a duration and frequency determined pursuant to the Pulsed Flow Regime Study Plan pursuant to Article [37].

(d) Spill Protocol Below Faraday Diversion Dam

- (i) Until the spillway exclusion net has been shown to effectively prevent spillway entrainment at flows of up to 4000 cfs, the Licensee shall spill 50% of the river's flow at the Faraday Diversion Dam during any period of unscreened spill at North Fork Dam lasting more than one hour during the periods April 1 through June 30 and October 1 through December 15. For unscreened spill duration at North Fork Dam lasting from 1 hour to 12 hours and with unscreened spill volumes less than 2,000 cfs, the Licensee shall continue to spill at Faraday Dam for 24 hours after the cessation of spill at North Fork Dam. During unscreened spills at North Fork Dam that last longer than 12 hours, or during spills greater than 2,000 cfs, regardless of duration, the Licensee shall continue to spill at Faraday Dam for 48 hours after the cessation of spill at North Fork Dam.
- (ii) After the spillway exclusion net has been shown to prevent spillway entrainment effectively at flows of up to 4000 cfs, the Licensee shall spill 50% of the river's flow when spill at North Fork Dam exceeds the capacity of the spillway exclusion net. For unscreened spill duration at North Fork Dam lasting from 1 hour to 12 hours and with unscreened spill volumes less than 2,000 cfs, the Licensee shall

continue to spill at Faraday Dam for 24 hours after the cessation of unscreened spill at North Fork Dam. During unscreened spills at North Fork Dam that last longer than 12 hours, or during unscreened spills greater than 2,000 cfs, regardless of duration, the Licensee shall continue to spill at Faraday Dam for 48 hours after the cessation of unscreened spill at North Fork Dam. The Licensee shall continue this spill protocol until the Licensee has demonstrated through effectiveness monitoring developed pursuant to Article [32] and conducted pursuant to Article 23 that overall Project smolt survival will not be diminished by the change, provided, however, that the spill protocol may be discontinued if the project survival standard has been met and will continue to be met without the spill protocol.

Article 14. Faraday Lake and Powerhouse

The Licensee shall operate Faraday Lake between a minimum elevation of 510.2 ft., msl, and a maximum elevation of 522.0 ft.

Article 15. Estacada Lake and River Mill Dam

(a) Lake Levels

- (i) The Licensee shall operate Estacada Lake between a minimum elevation of 384.5, PGE datum, and a maximum top of flashboards elevation of 389.0, except during releases of flows over the flashboards, when water levels will exceed elevation 389.0. Except as provided in paragraphs (ii), from December 15 to December 31, the Licensee shall not draw down Estacada Lake below elevation 386.0. From January 1 to May 15, the Licensee shall not draw down Estacada Lake below elevation 387.0. From May 16 to July 31, the licensee shall not draw down Estacada Lake below elevation 386.0. Except as provided in paragraph (iii), from August 1 to December 15, the Licensee shall not draw down Estacada Lake below elevation 384.5. These drawdown limitations shall not be effective when the flashboards are tripped, in which event the Licensee may draw down Estacada Lake to elevation 384.5 to facilitate replacement of the flashboards. From July 31 to October 31, the Licensee may draw Estacada Lake down to an extreme minimum of 382.5 during the following extraordinary situations: (1) drawdown needed for safe passage of anticipated flood flows to minimize damage to life and property; and (2) drawdown required to complete repairs on Project facilities (including spillway gates, the intake structures, or other dam structures).
- (ii) In order to improve salmonid spawning in Estacada Lake, if the Fish Committee determines that the drawdown limit of elevation 386.0 from December 15 to December 31 is not providing sufficient protection to redds, the Licensee shall not draw down Lake Estacada below elevation 387.0 feet from December 15 to December 31.
- (iii) In order to improve salmonid spawning in Estacada Lake, if the Fish Committee determines that spring Chinook or coho spawning is occurring prior to December 15 and that a drawdown to elevation 384.5 is not providing sufficient protection to redds in Estacada Lake, the Licensee shall, in consultation with the Fish Committee, determine (i) the appropriate minimum surface water elevation for drawdown,

which may be between water surface elevation 384.5 feet and 387.0 feet, and (ii) the appropriate time period to which the drawdown limitation applies. Upon such a determination, the Licensee shall implement the revised drawdown limitation.

- (iv) If the Licensee modifies the drawdown limit pursuant to paragraphs (ii) or (iii), above, the Licensee shall, after consultation with the Fish Committee, file a report notifying the Commission that the drawdown limit has been modified.

(b) Flows Below River Mill Dam

Except during necessary maintenance and emergency conditions, the Licensee shall operate River Mill Dam and Powerhouse to release flows below River Mill Dam that match River Mill Unregulated Inflow (as defined below) in accordance with the River Mill Operating Criteria in paragraph (b)(ii) of this article.

(i) Definitions Applicable to River Mill Operations

- (1) “River Mill Unregulated Inflow (RMU Inflow)” is the flow that would exist if the North Fork, Faraday, and River Mill dams did not exist. The RMU Inflow is in effect the same as the North Fork Reservoir inflow.
- (2) “Ramping for Power” is any flow setting of 30 minutes or longer above inflow followed by sustained flow settings below inflow, such that River Mill power generation is shifted from low value periods (typically nights or weekends) into higher value periods (typically 6 am to 10 pm Monday - Friday).
- (3) “Emergencies” means (1) any event that triggers the Project Emergency Action Plan; (2) power emergencies, as defined in the Western States Coordinating Council Minimum Operating Reliability Criteria (March 8, 1999), as such criteria may be amended during the license term; or (3) reservoir drawdowns needed for safe passage of anticipated flood flows to minimize damage to life and property.
- (4) “Flow Deviation” is the calculated change in the total water volume stored in the North Fork Reservoir, Faraday Diversion Dam Reservoir, Faraday Lake, and Estacada Lake, measured over a time interval of one to several hours and expressed as “cfs.”

(ii) River Mill Operating Criteria

- (1) The Licensee will operate River Mill Dam and Powerhouse to provide flow releases below River Mill Dam that equal RMU Inflow. Ramping for Power will not be permitted.
- (2) Within 6 months of license issuance, the Licensee shall file a plan and schedule to develop and implement within 12 months of license issuance a flow and level monitoring system to estimate RMU Inflow based on measured flows at the USGS Estacada gage, and water level measurements in North Fork Reservoir, Faraday Diversion Dam Reservoir, Faraday Lake and Estacada Lake. The water level data will be used to estimate the Flow

Deviation. The Licensee shall use the RMU Inflow estimate and the calculated Flow Deviation as the basis for control of the River Mill development's flow releases. Flow Deviation and the USGS Estacada gage flow will be recorded. Flow Deviation expressed as a percentage of USGS Estacada gage flow will be the basis for determining license compliance. The Licensee shall develop the plan in consultation with the Fish Committee. Upon Commission approval, the Licensee will implement the plan. Prior to completion of the flow and level monitoring system, the Licensee shall provide flow releases below River Mill Dam that equal average inflow to North Fork Reservoir.

- (3) The Licensee shall control the River Mill development flow release to hold the Flow Deviation within 10% or 100 cfs (whichever is greater) of the USGS Estacada gage flow, for all river flows, except during emergencies, equipment failures that affect river flows below River Mill or during scheduled maintenance activities that affect river flows below River Mill or that require reservoir level changes in the North Fork to River Mill reach. Flows during scheduled maintenance activities shall be subject to Paragraph (b)(ii)(4) of this Article. To account for errors in measurement of levels and flows and the inability to control flow releases precisely, the Licensee shall be allowed to exceed the allowed Flow Deviation for not more than two successive 30 minute measurements at the USGS gage.
- (4) During scheduled maintenance activities that affect river flows below River Mill or that require reservoir level changes in the North Fork to River Mill reach, the Licensee shall not reduce flows below River Mill to less than 500 cfs or RMU Inflow, whichever is less. The Licensee shall not adjust reservoir refill or draw down rates before and after maintenance events more than 50 cfs in any hour. If, during this flow adjustment period, the RMU Inflow changes at a rate of 50 cfs per hour or more, in the same direction desired for maintenance, then changes in the refill or drawdown rate of reservoirs in the North Fork to River Mill reach (i.e., the ramping of flows for maintenance) will stop and ramping of the flow release will equal the ramping rate of the RMU Inflow.

(iii) *Spill Protocol Below River Mill Dam*

Until the Licensee demonstrates through effectiveness monitoring developed pursuant to Article [32] and conducted pursuant to Article 23 that the North Fork spillway exclusion net effectively prevents spillway entrainment at flows of up to 4000 cfs, the Licensee shall spill at least 400 cfs at River Mill Dam during any periods of unscreened spill at North Fork Dam lasting more than one hour during the periods April 1 through June 30 and October 1 through December 15. For unscreened spill duration at North Fork Dam lasting from 1 hour to 12 hours with unscreened spill volumes less than 2,000 cfs, the Licensee shall spill at River Mill Dam for 36 hours after the cessation of spill at North Fork Dam. During unscreened spills at North Fork Dam that last longer than 12 hours, or during spills

greater than 2,000 cfs, regardless of duration, the Licensee will continue to spill at River Mill Dam for 60 hours after the cessation of spill at North Fork Dam. After the Licensee demonstrates that the North Fork spillway exclusion net effectively prevents spillway entrainment at flows of up to 4000 cfs, the Licensee shall continue the spill protocol below River Mill Dam until the Licensee has demonstrated through effectiveness monitoring pursuant to Article [32] that overall Project smolt survival will not be diminished by discontinuing the spill protocol, provided, however, that the spill protocol may be discontinued if the Licensee demonstrates that the project survival standard has been met and will continue to be met without the spill protocol

(c) River Mill Operations Year-Three Review and Reopener

Within two months after the third annual operations report is filed with FERC pursuant to Article [16], the Licensee shall initiate consultation with the Fish Committee regarding the operation of the River Mill Development. During this consultation, the Licensee shall prepare an analysis of the operating results, which are described in annual operating reports, of the first two calendar years after the River Mill flow level and monitoring system is in place. The consultation shall include, but need not be limited to, the results of an evaluation of whether operation of the River Mill Development requires the allowance to exceed the allowed Flow Deviation (as provided in paragraph (b)(ii)(3) of this Article) for not more than two successive 30-minute measurements at the USGS Estacada Gage. After consulting with the Fish Committee, the Licensee shall file with the Commission for approval a plan that includes, if appropriate, a revised protocol for measuring the allowed Flow Deviation and any other agreed upon changes to the Operating Plan. Upon Commission approval, the Licensee shall implement the plan.

(d) River Mill Operations Year-Seven Review

Within two months after the seventh annual operations report is filed with the Commission pursuant to Article [16], the Licensee shall consult with the Fish Committee regarding River Mill operations during the first seven calendar years of operation. The Licensee shall file the results of this consultation with the Commission, including any agreed upon changes to the Operating Plan. Upon Commission approval, the Licensee shall implement the plan.

Article 16. Operations Compliance Plan

Within twelve months of license issuance, the Licensee shall, after consultation with the Fish Committee, file with the Commission, for approval, an Operations Compliance Plan that describes how the licensee will comply with the operational requirements of this license. The plan shall include, but not be limited to:

- (a) a provision to monitor compliance with the requirements specified in Articles [6 – 15];
- (b) a provision to notify the Fish Committee, OWRD, and the Commission no later than 48 hours after the Licensee becomes aware of any deviation from the requirements specified in Articles [6 – 15], except when a different notice period is provided in Article [3].

- (c) a description of the exact location of all gages and/or measuring devices that would be used to monitor compliance, the method of calibration for each gage and/or measuring device, the frequency of recording for each gage and/or measuring device, and a monitoring schedule;
- (d) a provision to maintain a log of project operation;
- (e) a provision to issue an Annual Project Operations Report and incident reports, as described in greater detail in the Project Operating Plan, documenting any events where the operation of the project deviated from the operational requirements of this license. At a minimum, the Annual Project Operations Report shall include hourly and daily inflow records for the reporting period; and incident reports shall include hourly and daily inflow records as appropriate to document compliance with the relevant project operating constraints.
- (f) a plan and schedule for conducting maintenance operations on Project facilities, other than fish passage facilities, the maintenance of which is governed by Article [26], in a manner that minimizes adverse impacts on fish.
- (g) a provision to monitor flow releases from Lake Harriet Dam by monitoring by the percent opening of the flow control valve of the base flow release facility, and the water level in Lake Harriet in order to measure flows over the crest weir based on a lake level vs. weir discharge relationship.
- (h) a provision to monitor compliance with the release requirements of Article [8], including but not limited to, regularly monitoring for valve plugging with a calibrated manual flow monitoring feature, such as a staff gage in the pipeline or channel just downstream of the control valve.
- (i) a provision to monitor and record hourly flows released from Lake Harriet Dam and to provide hourly flow information to any settlement party within 30 days of a request for such information.
- (j) a provision to periodically review and adjust inflow estimating methods to obtain good correlation between the USGS Estacada gage record and the inflow estimate record.

Article 17. Water Quality Monitoring

- (a) The Licensee shall conduct water quality monitoring pursuant to the Water Quality Management and Monitoring Plan (WQMMP) approved by the Oregon Department of Environmental Quality (ODEQ) as part of the water quality certification issued by that agency and attached to this license as Appendix A. Any subsequent amendments to the WQMMP approved by ODEQ shall also be approved by the Commission prior to implementation. Copies of the annual reports submitted to ODEQ shall also be filed with the Commission within 30 days of their filing with ODEQ.
- (b) Within six months after license issuance, the Licensee shall, after consultation with the Blue-Green Team and with the approval of ODEQ, develop and file with the Commission, for approval, a plan, to be incorporated into the WQMMP, to monitor blue-green algae in Timothy Lake and North Fork Reservoir. The plan will be consistent with the provisions of the Blue-Green Algae Monitoring Plan, Exhibit F to

the Settlement Agreement, and will be based on the results of pre-license blue-green algae monitoring conducted pursuant to that plan. Upon Commission approval, the Licensee will implement the monitoring plan.

Fish Passage and Protection Conditions

Article 18. Interim Measures

Within six months of license issuance, if the Licensee has not completed the Interim Measures described in Exhibit B of the Settlement Agreement, the Licensee shall file with the Commission, for approval, after consultation with the Fish Committee and with the approval of the Fish Agencies, a plan and schedule for completing the Interim Measures.

Article 19. Fish Passage and Protection Plan

The Licensee shall implement the Fish Passage and Protection Plan, and all exhibits and appendices thereto, collectively, Exhibit D to the Settlement Agreement, as approved by this order.

Article 20. Narrative Fish Passage Standards

(a) ***Downstream Passage:*** The Licensee shall achieve the following narrative standards for downstream passage of anadromous fish through the Clackamas River Hydroelectric Project:

- (i) **Steelhead Kelts:** Safe, timely and effective passage through the Project without serious injury or mortality
- (ii) **Salmonid Fry and Pre-smolts:** Safe, timely and effective passage through the Project without serious injury or mortality.
- (iii) **Juvenile Pacific lamprey:** Prior to the development and USFWS adoption of safe passage standards for Pacific lamprey, the Licensee shall provide safe, timely, and effective passage of Pacific lamprey without serious injury or mortality at the Project.

If a technology-based standard for the safe passage of juvenile Pacific lamprey at hydroelectric projects is adopted by the Pacific Region of the USFWS during the term of the new license, the Licensee shall consult with the Fish Committee regarding the appropriate use of the standard, including any limitations caused by the high head design at North Fork and the multiple dam nature of the Project. To the extent deemed appropriate by the USFWS following the Licensee's consultation with the Fish Committee, the Licensee shall adopt the standard at the Clackamas River Hydroelectric Project. The Licensee shall consult with the Fish Committee regarding potential measures needed to comply with the standard. After consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee shall develop and file with the Commission, for approval, a plan to implement the new standard. Upon Commission approval, the Licensee shall implement the plan.

- (b) **Upstream Passage:** The Licensee shall achieve the following narrative standards for upstream passage of anadromous fish through the Clackamas River Hydroelectric Project:
 - (i) Salmonids: Safe, timely and effective passage without serious injury or mortality for upstream migrating salmonids seeking to pass the Project.
 - (ii) Pacific lamprey: Safe, timely and effective passage without serious injury or mortality for upstream migrating Pacific lamprey seeking to pass the Project.
- (c) The Licensee shall monitor the effectiveness of fish passage facilities pursuant to Article [32] to determine fish passage performance relative to the narrative standards in this Article and, based on the results of such monitoring, if a deficiency is found, the Licensee shall, in consultation with the Fish Committee, evaluate (i) the causes of the failure to meet the narrative standards, and (ii) potential measures to remedy such failure. The Licensee shall prepare a plan, in consultation with the Fish Committee and with the approval of the Fish Agencies, to implement measures to reduce injury to juvenile salmonids and achieve the above standards. Upon Commission approval, the Licensee shall implement the plan.

Article 21. Upstream Fish Passage

- (a) The Licensee shall operate and maintain the River Mill Fish Ladder and the North Fork Fish Ladder and fish sorting facility to provide safe, timely, and effective upstream passage of resident and anadromous fish.
- (b) Within 12 months of license issuance, the Licensee shall file with the Commission, for approval, after consultation with the Fish Committee and with the approval of the Fish Agencies, a final design and schedule to implement the modifications to the North Fork Fish Ladder and fish sorting facility described in Section III(B) and Appendix C of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall complete the following modifications to the North Fork Fish Ladder within 36 months of license issuance:
 - (i) **Fish Ladder Entrance** – The Licensee shall ensure that flow releases to the Faraday bypass reach do not negatively affect upstream passage of adult fish and shall investigate the feasibility of providing all flows released into the Faraday bypass reach pursuant to Article [13] through the North Fork Fish Ladder entrance. The Licensee shall modify the entrance of the North Fork Fish Ladder as necessary to maintain the ladder’s attraction to and function for upstream migrating salmonids.
 - (ii) **Fish trap** – The Licensee shall decommission the existing adult trap facility on the North Fork Ladder and replace it with a new fish trap and sort facility. The Licensee shall make such modifications to the ladder as are required to maintain proper ladder flow after the existing trap is decommissioned. The Licensee shall continue to develop the preliminary design of the trap facility as shown in Section III(B) and Appendix C of the Fish Passage and Protection Plan. The Licensee shall design the new trap and sort facility to meet the NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan.

- (iii) *Existing Fish Trap and Separator* -- Upon completion of the modifications to the North Fork Fish Ladder and fish sorting facility, the Licensee shall (i) decommission the existing fish trap in place, taking such steps as are necessary to ensure that the existing trap is inaccessible to fish using the North Fork Fish Ladder, and (ii) remove the existing separator and restore the pool where it is currently located to function as a pool in the North Fork Fish Ladder.
- (c) Upon completion of construction, the Licensee shall operate and maintain the North Fork Fish Ladder modifications, according to the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 22. Downstream Fish Passage

The Licensee shall construct, operate, and maintain downstream fish passage facilities that will be functional during all months of the year to provide safe, timely, and effective passage without serious injury or mortality for resident and anadromous fish seeking to pass the project, as provided in Articles [20, 23, and 24].

Article 23. Downstream Fish Passage Standards

- (a) *Design Objective:* The Licensee shall design each downstream fish passage facility using a design objective of less than or equal to 0.5% morality and less than or equal to 2% injury for smolts, and less than or equal to 2% mortality and less than or equal to 4% injury for fry.
- (b) *Juvenile Salmonid Smolt Numerical Passage Standards:* The Licensee shall provide fish passage conditions that achieve the numerical passage performance standards specified in Table 1 of this Article for downstream passage of juvenile salmonids.

Table 1: Performance Standards for Juvenile Salmonid Downstream Passage at the Clackamas River Hydroelectric Project.*

Standards Applicable After Initial Downstream Fish Passage (A and B) Measures Implemented:		
Tier	Survival Standard	Measures
1	97%	No additional measures
2	88 to <97%	C ROUND 1 - secondary measures
3	<88%	D Measure

Standards Applicable After Additional (C Round 1) Measures Implemented:		
Tier	Survival Standard	Measures
1	97%	No additional measures beyond "C ROUND 1" measures
4	91 to <97%	C ROUND 2 - NF and downstream measures
5	<91%	D Measure

Standards Applicable After Additional (C Round 2) Measures Implemented:		
Tier	Survival Standard	Measures
1	97%	No additional measures beyond "C ROUND 2" measures

6	95 to <97%	Population level look at all salmonid runs not achieving the survival standard to determine if going to the D Measure is warranted; if warranted, Licensee builds the D Measure. If not, consultation with Fish Committee regarding other feasible passage measures or a mitigation requirement
7	<95%	D Measure

Standards Applicable After D Measure Implemented		
Tier	Survival Standard	Measures
1	97%	No additional measures beyond D measure
8	<97%	Licensee will consult with the Fish Committee regarding the additional passage measures or mitigation measures beyond D Measure. If agreement is reached, Licensee will, after Fish Agency approval, submit a plan to implement such measures to FERC. If agreement is not reached, any party may request FERC to require additional passage or mitigation measures, with all parties reserving all rights and defenses regarding such request.

* In calculating Project-wide survival of salmonids, the portion of the salmonid population that results from spawning between River Mill and Faraday is assumed to be 3% of the total population, unless, after consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee determines otherwise.

- (c) The “Measures” listed in Table 1 are required pursuant to Article [23] and are categorized into eight “Tiers” according to planned timing of implementation and the level of performance that is being addressed, based upon downstream fish passage studies conducted pursuant to Article [32].
- (d) The Licensee shall undertake the A and B Measures in Article [27] upon license issuance, and shall evaluate Project-wide survival of juvenile salmonid smolts upon completion of those measures, as provided in Article [32]. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the studies conducted pursuant to Article [32] and determining whether survival falls into Tier 1, 2, or 3. Upon Commission approval of the report, the Licensee shall undertake the applicable measures described in paragraphs (i) to (iii):
 - (i) Tier 1 provides downstream passage performance standards that, if met, mean that no further measures to improve downstream passage are required by the Licensee.
 - (ii) If survival falls within the ranges specified in Tier 2, the Licensee shall undertake the C Round 1 Measures in Article [28(a)].
 - (iii) If survival falls within the ranges specified in Tier 3, the Licensee shall undertake the D Measure in Article [28(b)].

- (e) If the Licensee implements the C Round 1 Measures in Article [28(a)], the Licensee shall, upon completion of those measures, evaluate Project-wide survival of juvenile salmonid smolts as provided in Article [32]. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the studies conducted pursuant to Article [32] and determining whether survival falls into Tiers 1, 4, or 5. Upon Commission approval of the report, the Licensee shall undertake the applicable measures described in paragraphs (i) to (iii):
- (i) Tier 1 provides downstream passage performance standards that, if met, mean that no further measures to improve downstream passage are required by the Licensee.
 - (ii) If survival falls within the ranges specified in Tier 4, the Licensee shall undertake the C Round 2 Measures in Article [29(a)].
 - (iii) If survival falls within the ranges specified in Tier 5, the Licensee shall undertake the D Measure in Article [29(b)].
- (f) If the Licensee implements the C Round 2 Measures in Article [29(a)], the Licensee shall, upon completion of those measures, evaluate Project-wide survival of juvenile salmonid smolts as provided in Article [32]. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the studies conducted pursuant to Article [32] and determining whether survival falls into Tiers 1, 6, or 7. Upon Commission approval of the report, the Licensee shall undertake the applicable measures described in paragraphs (i) to (iii):
- (i) Tier 1 provides downstream passage performance standards that, if met, mean that no further measures to improve downstream passage are required by the Licensee.
 - (ii) If survival falls within the ranges specified in Tier 6, the Licensee shall undertake the measures in Article [30(a)].
 - (iii) If survival falls within the ranges specified in Tier 7, the Licensee shall undertake the D Measure in Article [30(b)].
- (g) If the Licensee implements the D Measure in Article [28(b), 29(b), or 30(b)], the Licensee shall, evaluate Project-wide survival of juvenile salmonid smolts upon completion of that measure, as provided in Article [32]. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the studies conducted pursuant to Article [32] and determining whether survival falls into Tiers 1 or 8. Upon Commission approval of the report, the Licensee shall undertake the applicable measures described in paragraphs (i) or (ii):
- (i) Tier 1 provides downstream passage performance standards that, if met, mean that no further measures to improve downstream passage are required by the Licensee.
 - (ii) If survival falls within the ranges specified in Tier 8, the Licensee shall undertake the measures in Article [31].
- (h) **Modification of Downstream Facilities:** Upon completion of the measures required by Articles [27 – 31], the Licensee shall continue to monitor the effectiveness of

downstream passage facilities pursuant to Article [32]. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of such monitoring and proposing a plan for measures or modifications to the downstream passage facilities needed to continue to achieve the standards for safe, timely and effective fish passage set forth in this Article. Upon Commission approval, the Licensee shall implement the measures or modifications.

- (i) **Notification:** The Licensee shall notify the Commission and the Fish Committee when the downstream fish passage facilities are fully operational. The Licensee shall thereafter operate, maintain, and monitor downstream fishways in accordance with the Downstream Fishway Operation and Maintenance Plan pursuant to Article [26], and the Downstream Fishway Monitoring Plan pursuant to Article [32] Upon Commission approval and coincident with the initiation of downstream fishway operations, the Licensee shall begin implementation of the plans

Article 24. Juvenile Salmonid Injury Standard

- (a) The Licensee shall achieve the following downstream passage injury standards:

Injury Standard	Measures to Address Injury
$\leq 2\%$ injury smolts $\leq 4\%$ injury fry	No additional measures
$> 2\%$ but $\leq 4\%$ injury smolts $> 4\%$ but $\leq 6\%$ injury fry	Additional work to lessen injury as described below
$> 4\%$ injury smolts $> 6\%$ injury fry	Additional work to lessen injury as described below

The Licensee shall monitor the effectiveness of downstream passage facilities pursuant to Article [32] to determine fish passage performance for injury. As provided in Article [32], the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of such monitoring, (i) evaluating the causes of the observed injuries to juvenile salmonids, and (ii) proposing potential measures to reduce such injuries. Upon Commission approval, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan to implement measures to reduce injury to juvenile salmonids and achieve the above standards. Upon Commission approval, the Licensee shall implement the plan.

Article 25. Design Review Process

The Licensee shall submit for review by the Fish Committee, and for approval by the Fish Agencies, the results of all fish passage and protection facility design investigations, preliminary design plans and specifications, and final design plans and specifications. The Licensee shall design each facility to meet NOAA Fisheries Service draft fish passage criteria , attached as Appendix I to the Fish Passage and Protection Plan. To the extent not otherwise completed as Interim Measures as described in Exhibit B to the Settlement Agreement, the Licensee shall

complete the following modeling and design steps prior to the construction of fish passage and protection facilities:

- (a) *Constructability and Feasibility*: Constructability/feasibility design is the first step needed to select a design option and facility location.
- (b) *Design Consultation*: After the constructability/feasibility design is complete and a preferred option is selected, the Licensee shall consult with the Fish Committee, prior to starting detailed design, including consultation regarding appropriate design tools, such as computational fluid dynamics modeling or physical modeling.
- (c) *Preliminary Design Selection*: After design has progressed to the 25% design stage, the Licensee shall undertake consultation with the Fish Committee before proceeding to more detailed design. If modeling is not required to make the design selection, the Licensee will conduct any necessary modeling and the progression to the 25% design stage concurrently.
- (d) *Design Consultation and Review*: After any necessary modeling is complete, and the design has progressed to 50%, the Licensee will undertake consultation with the Fish Committee (and with the Commission for dam safety purposes) prior to proceeding with further design.
- (e) *Final Consultation*: After consultation is complete, the Licensee will progress the design to 90%, and then to final status. The Licensee shall, after consultation with the Fish Committee and with approval by the Fish Agencies, file the final design with the Commission, for approval. Upon Commission approval, the Licensee shall implement the design.

Article 26. Fishway Operation and Maintenance

- (a) At all times during the term of the license, the Licensee shall ensure that all fishways are kept in proper working order and that all fishway areas are kept clear of trash, sediment, logs, debris, and other material that could hinder passage. The Licensee shall perform maintenance in sufficient time before a migratory period such that fishways can be tested and inspected and will operate effectively prior to and during the migratory periods.
- (b) Within twelve months of completion of the downstream passage measures identified in (i) Exhibit B to the Settlement Agreement and (ii) Article 27, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, develop and file with the Commission, for approval, a Fishway Operation and Maintenance Plan and schedule for operating and maintaining fish passage and protection facilities consistent with the requirements of paragraph (a) of this Article. Upon Commission approval, the Licensee shall implement the plan.
- (c) Following the construction or modification of fish passage facilities, the Licensee shall consult with the Fish Committee to determine if it is necessary to amend the Fishway Operation and Maintenance Plan. If an amendment or modification is required, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, any necessary amendment or

modification to the plan. Upon Commission approval, the Licensee shall implement the amended or modified plan.

Article 27. Initial Downstream Fish Passage Measures (A and B Measures)

- (a) Notwithstanding the construction of other fish passage facilities specified in this license, the Licensee shall continue to operate and maintain the existing downstream fish collector located on the north bank of the North Fork forebay.
- (b) The Licensee shall construct a 500-cfs surface collector in the River Mill forebay. Within six months of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, file with the Commission, for approval, a final design for and schedule to complete, within two years of license issuance, a surface collection facility in the River Mill forebay that will be gravity fed, using Unit 5 flows, have a capacity of 500 cfs, and include a juvenile salmonid sampling facility located downstream of the dam near the upper end of the outfall pipe. The Licensee will design the facility using the NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan, consistent with the conceptual design for this facility attached as Appendix B to the Fish Passage and Protection Plan, Exhibit D to the Settlement Agreement. The Licensee shall continue to operate the existing prototype juvenile bypass facility at the River Mill Dam until construction of the surface collection facility begins.
- (c) The Licensee shall construct a spillway exclusion net in the North Fork forebay. Within 18 months of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, file with the Commission, for approval, a final design for and schedule to complete, within three years of license issuance, a retractable exclusion net approximately 240 ft long and 50 ft deep blocking the North Fork Dam spillway bays at flows up to 4,000 cfs. This net will extend from just downstream of the upper ladder bypass entrance to the face of the dam perpendicular to the flow and following the 50-ft depth contour. This net will be constructed to pass spill flows up to 4,000 cfs before it lifts from the bottom and will be designed to reduce the loss of smolts during spill.
- (d) Within 24 months of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, file with the Commission, for approval, a final design for and schedule to complete, within five years of license issuance, the fish passage facilities listed below. The Licensee shall design all fish passage facilities to meet the NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan.
 - (i) ***Construction of a 1000-cfs floating surface collector at North Fork Dam:*** The Licensee shall construct a 1000-cfs floating surface collector in the North Fork Dam forebay positioned above the generator intakes. The surface collector will discharge fish to the downstream-migrant pipeline, so that smolts move into the pipeline immediately after capture and are transported downstream to below River Mill Dam without being delayed, handled, or concentrated, except for fish sampling at the new evaluation facility. If feasible, the Licensee shall design the 1000-cfs

surface collector to include provisions to use the pump discharge plume to create conditions at depth in front of the dam to help guide fish up to the surface collector;

- (ii) ***Installation of a guidance curtain/net at North Fork Dam:*** The Licensee shall construct a guidance curtain/net from the south bank of the North Fork Reservoir that will angle downstream to the south edge of the entrance to the new North Fork surface collector. This guidance curtain/net will be approximately 100 feet deep, to be below the normal migration depth of smolts, but above major influence from the turbine intake flows; and
- (iii) ***Installation of strobe lights:*** The Licensee shall install strobe lights to act as a deterrent to guide fish that might otherwise sound and exit North Fork Reservoir through the turbines upward to the 1000-cfs surface collector. The design will provide that strobe lights will be placed in a pattern near the bottom in front of the intake and under the entrance to the surface collector so that smolts moving away from the strobes are likely to find and exit through the collector.
- (e) Within five years of license issuance, the Licensee shall, in consultation with the Fish Committee, undertake a feasibility analysis of additional guidance curtains or nets, including but not limited to full forebay nets, in the North Fork Reservoir that might be added to increase guidance efficiency at North Fork. Following this analysis and after consultation with the Fish Committee, the Licensee shall submit a report to the Fish Committee describing which option is the most feasible alternative to increase guidance efficiency at North Fork. In consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee shall prepare a design for the most promising alternative(s) so that it can, upon submission to and approval by the Commission, pursuant to Article [28] be implemented, should studies show that additional guidance is necessary in order to achieve the upon survival standards in Article [23].
- (f) Within six years of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, complete the design of a new screen system for the existing north bypass at the North Fork Dam that will have a capacity of 500 cfs at NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan.
- (g) Within six years of license issuance, the Licensee shall contract with an independent expert, acceptable to the Fish Committee, to design the population assessment described in the Fish Passage and Protection Plan, Section II(C), “Downstream Fish Passage Studies and Tiered Decision Making.” The study design shall be developed in consultation with the Fish Committee and with the approval of the Fish Agencies and shall be filed with the Commission for approval. Upon Commission approval, the Licensee shall implement the study design.
- (h) Upon completion of construction of each of the facilities described in this article, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, perform a hydraulic evaluation of that facility according to the procedures described in Appendix H of the Fish Passage and Protection Plan. Upon completion of hydraulic testing, the Licensee shall operate and maintain the facilities as provided in the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 28. Additional Downstream Fish Passage Measures After A and B Measures Implemented

- (a) If the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(d) demonstrates that downstream smolt survival after completion of the measures required pursuant to Article [27] is greater than or equal to 88% for each species and less than 97% for any one species, the Licensee shall, within 4 months of filing such evaluation with the Commission, in consultation with the Fish Committee and with the approval of the Fish Agencies, determine whether to implement the measures for which designs were prepared pursuant to paragraphs (e) and (f) of Article [27].
 - (i) If the Licensee determines after consultation with the Fish Committee and with the approval of the Fish Agencies to implement either of the designs prepared pursuant to paragraphs (e) and (f) of Article [27], it shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for completing these measures. Upon Commission approval, the Licensee shall implement the design.
 - (ii) If the Licensee determines after consultation with the Fish Committee and with the approval of the Fish Agencies not to implement either of the designs prepared pursuant to paragraphs (e) and (f) of Article [27], it shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for completing such additional measures as the Licensee determines to implement. Such additional measures may include, but shall not be limited to: (i) improvements to the North Fork spillway; (ii) installation of a manifold bypass at the Faraday Powerhouse; (iii) installation of louvers at the Faraday Lake intake; (iv) installation of additional collection capacity at North Fork forebay; (v) limiting turbine operation to peak efficiencies; or (vi) reduced spacing on the River Mill trash racks. Upon Commission approval, the Licensee shall implement the design for the additional measures.
- (b) If the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(d) demonstrates that downstream smolt survival is less than 88% for any one species, the Licensee shall, within 12 months of filing such evaluation with the Commission, in consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for constructing a 3,000 cfs surface collection facility hydraulically-connected to the North Fork Powerhouse. The Licensee shall design the 3,000-cfs surface collector to comply with the draft NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall construct the 3000-cfs surface collector.
- (c) Upon completion of construction of each of the facilities described in this article, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, perform a hydraulic evaluation of that facility according to the procedures described in Appendix H of the Fish Passage and Protection Plan. Upon

completion of hydraulic testing, the Licensee shall operate and maintain the facilities as provided in the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 29. Additional Downstream Fish Passage Measures After C Round 1 Measures Implemented

- (a) If after implementation of additional downstream fish passage measures pursuant to Article 28(a), the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(e) demonstrates that downstream smolt survival is greater than or equal to 91% for each species and less than 97% for any one species, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for completing such other measures as the Licensee determines to implement in order to reduce project-wide mortality and achieve the project-wide survival standard. Such facilities or measures may include, but shall not be limited to, the measures identified in paragraph (a)(ii) of Article [28]. Upon Commission approval, the Licensee shall construct the facility or implement the measure.
- (b) If after implementation of additional downstream fish passage measures pursuant to Article 28(a), the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(e) demonstrates that downstream smolt survival is less than 91% for any one species, the Licensee shall, within 12 months of filing such evaluation with the Commission, in consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for constructing a 3,000 cfs surface collection facility that is hydraulically-connected to the North Fork Powerhouse. The Licensee shall design the 3000-cfs surface collector to comply with the NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall construct the 3000-cfs surface collector.
- (c) Upon completion of construction of each of the facilities described in this article, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, perform a hydraulic evaluation of that facility according to the procedures described in Appendix H of the Fish Passage and Protection Plan. Upon completion of hydraulic testing, the Licensee shall operate and maintain the facilities as provided in the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 30. Additional Downstream Fish Passage Measures After C Round 2 Measures Implemented

- (a) If after after implementation of additional downstream fish passage measures pursuant to Article [29(a)], the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(f) demonstrates that downstream smolt survival is greater than or equal to 95% for each species and less than 97% for any one species, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file

with the Commission, for approval, a study plan for a population level study to determine if constructing a 3,000 cfs surface collection facility hydraulically-connected to the North Fork Powerhouse is warranted. The study plan shall provide for the population study to be peer-reviewed. Upon Commission approval, the Licensee shall implement the study.

- (i) If after consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee determines as a result of the population level study, that construction of the 3,000 cfs surface collector is warranted, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule to construct the facility. The Licensee shall design the 3000-cfs surface collector to comply with the draft NOAA Fisheries Service draft fish passage criteria attached as Appendix I to the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall construct the 3,000-cfs surface collector.
 - (ii) If after consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee determines as a result of the population level study, that construction of the 3,000 cfs surface collector is not warranted, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan to implement other feasible passage or mitigation measures that would reduce project-wide mortality and achieve the project-wide survival standard. Upon Commission approval, the Licensee shall implement the plan.
- (b) If the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(f) demonstrates that downstream smolt survival is less than 95% for any one species, the Licensee shall, within 12 months of filing such evaluation with the Commission, in consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final design and schedule for constructing a 3,000 cfs surface collection facility hydraulically-connected to the North Fork Powerhouse. The Licensee shall design the 3000-cfs surface collector to comply with the NOAA Fisheries Service draft fish passage criteria, attached as Appendix I to the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall construct the 3,000-cfs surface collector.
- (c) Upon completion of construction of each of the facilities described in this article, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, perform a hydraulic evaluation of that facility according to the procedures described in Appendix H of the Fish Passage and Protection Plan. Upon completion of hydraulic testing, the Licensee shall operate and maintain the facilities as provided in the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 31. Additional Downstream Fish Passage Measures After D Measure Implemented

- (a) If the 3,000-cfs surface collector is constructed, the Licensee's evaluation of Project-wide downstream juvenile salmonid smolt survival developed pursuant to Article [32] and conducted pursuant to Article 23(g) demonstrates that project-wide downstream

smolt survival is less than 97% for any one species after completion of the 3,000 cfs surface collection facility at North Fork, the Licensee shall consult with the Fish Committee regarding the implementation of additional passage or mitigation measures.

- (i) If the Licensee determines after consultation with the Fish Committee and with the approval of the Fish Agencies that such measures are warranted, it shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan and schedule to implement any identified mitigation measures. Before considering additional passage measures, the Licensee will consider modifications or improvements to existing facilities. Upon Commission approval, the Licensee shall implement such measures.
 - (ii) If the Licensee determines after consultation with the Fish Committee and with the approval of the Fish Agencies that such measures are not warranted, it shall, after consultation with the Fish Committee, file with the Commission a report documenting such determination. If the Commission determines that additional passage or mitigation measures are warranted, the Licensee shall implement such measures.
- (b) Upon completion of construction of any facilities described in this article, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, perform a hydraulic evaluation of that facility according to the procedures described in Appendix H of the Fish Passage and Protection Plan. Upon completion of hydraulic testing, the Licensee shall operate and maintain such facility as provided in the Fishway Operation and Maintenance Plan pursuant to Article [26].

Article 32. Downstream Fish Passage Effectiveness Monitoring

- (a) The Licensee shall conduct a comprehensive program of Downstream Fish Passage Studies to monitor the effectiveness of downstream passage through project fishways as modified pursuant to the terms of this license and to inform decisions as to additional mitigation measures to be implemented to achieve compliance with numerical, narrative, and injury standards in Articles [20, 23, and 24].
- (b) The Licensee shall, within one year of license issuance, file with the Commission, for approval, a schedule for the development of plans for Downstream Fish Passage Studies to monitor the effectiveness of project fishways as described in the Fish Passage and Protection Plan. The Licensee shall develop the schedule in consultation with the Fish Committee and with the approval of the Fish Agencies.
- (c) Upon Commission approval of the schedule, the Licensee shall develop the Downstream Fish Passage study plans for effectiveness monitoring in consultation with the Fish Committee and with the approval of the Fish Agencies. The Licensee shall conduct these studies with continued involvement of the Fish Committee through the annual work planning and reporting process. Each study plan will include objectives, tasks and evaluation/decision criteria. Where appropriate, study plans will be designed to evaluate the hydraulic and biological performance and effectiveness of individual fish passage facilities in achieving the criteria and goals set forth in Articles [20, 23, and 24]. Such effectiveness evaluations shall include, at a minimum, the number of

fish, by species and life stage, captured and released by the facility and a record of observations on the physical condition of the fish using the facility fishways.

- (d) The Licensee may, in consultation with the Fish Committee, make minor modifications to the study methodology for multi-year studies. The Licensee shall describe the need for any such minor modifications to the study methodology in the annual progress report. The changes will be based on the results of the study to date. Following approval by the Fish Agencies, the Licensee shall file the study plans with the Commission. The Licensee may, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, major modifications to the study methodology. Upon Commission approval, the Licensee shall implement the modified plans.

Article 33. North Fork Bypass Facility Effectiveness Monitoring

- (a) Within 42 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan for two studies to evaluate the new outfall of the North Fork juvenile pipeline below River Mill Dam. The studies will be consistent with the description included in the Fish Passage and Protection Plan and will include (i) recovery of tagged smolts and presmolts and (ii) an assessment of mortality, injury, and descaling in the North Fork downstream migrant pipeline. After Commission approval, the Licensee shall implement the plans.
- (b) Based on results of the pipeline outfall tests, which shall be analyzed pursuant to the terms of the Fish Passage and Protection Plan, in consultation with the Fish Committee, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file plans with the Commission for making any modifications to the facilities needed to meet the project wide downstream juvenile migration survival standard. Upon Commission approval, the Licensee shall implement the plans.

Article 34. Upstream Fish Passage Effectiveness Monitoring

- (a) ***Plan Development:*** Within 18 months after license issuance, the Licensee shall file with the Commission, for approval, after consultation with the Fish Committee and with the approval of the Fish Agencies, a plan to evaluate delay, injury, and mortality to salmonids migrating upstream through project facilities. The plan and schedule will include two tiers: (i) near field studies to identify problem facilities or reaches, and (ii) far field studies to evaluate delayed effects of passage on adult distribution or survival. The plan will focus on wild stocks of spring Chinook and coho salmon and winter steelhead, and will include the elements described in Section III.C of the Fish Passage and Protection Plan, as well as the study plan outline: “Evaluating Upstream Migration of Salmonid Adults through the Clackamas River Hydro Project,” attached as Appendix D to the Fish Passage and Protection Plan. Upon Commission approval, the Licensee will implement the study plan.
- (b) ***Water Quality Monitoring:*** The upstream passage evaluation will include monitoring and analysis of relevant water quality parameters, including but not limited to temperature, that might affect fish migratory behavior, delay, and route selection. If

this monitoring is not included in the Water Quality Monitoring and Management Plan (WQMMP), or if additional sites beyond those included in the WQMMP are needed to complete the upstream passage study, water quality monitoring shall follow the methodology and quality assurance plans in the WQMMP. The water quality monitoring components of the evaluation shall include, but are not limited to, an assessment of temperature differences:

- (i) Between the Faraday Powerhouse tailrace and the Faraday Diversion Reach immediately upstream of the influence of the Faraday Powerhouse;
 - (ii) Between the Faraday Diversion Reach and the North Fork Fish Ladder;
 - (iii) Through the North Fork Fish Ladder; and
 - (iv) Between the Oak Grove Powerhouse tailrace and the Clackamas River immediately upstream of the influence of the Oak Grove Powerhouse.
- (c) ***Fish Ladder Entrance Feasibility Plan:*** Within 18 months after license issuance, the Licensee shall file with the Commission, for approval, after consultation with the Fish Committee and with the approval of the Fish Agencies, a plan to investigate the feasibility and cost of matching flows in the Faraday bypass reach with auxiliary flow improvements in the entrance of the North Fork Fish Ladder to improve fish passage conditions. Upon Commission approval, the Licensee will implement the feasibility plan.
- (d) ***Evaluation Implementation:*** The Licensee shall conduct these evaluations with continued involvement of the Fish Committee through an annual work planning and reporting process. Results will be reported annually to the Fish Committee, and after consultation with the Fish Committee, will be filed with the Commission, along with any comments by members of the Fish Committee. The monitoring plan will provide that the Licensee may implement minor modifications to the methodology and schedule after consultation with the Fish Committee and with the approval of the Fish Agencies. The need for any such minor modifications to the methodology or schedule will be described in the annual progress report filed with the Commission and will be based on the results of the study to date. The Licensee may, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, major modifications to the methodology. Upon approval by the Commission, the Licensee will implement such major modifications.
- (e) ***Implementation of Monitoring Results:*** Based on the results of the monitoring, the Licensee shall, in consultation with the Fish Committee, develop a list of potential modifications or additions to Project operations and Project facilities that will improve upstream passage conditions. After consultation with the Fish Committee and with the approval of the Fish Agencies, the Licensee shall file plans with the Commission, for approval, to make specific modifications or additions to Project operations or facilities that were selected from the list of potential modifications or additions. Upon Commission approval, the Licensee will implement the plans.

Article 35. Evaluation of Stranding Below River Mill

The Licensee shall, after consultation with the Fish Committee, file with the Commission, for approval, a plan for a study to evaluate the risk of juvenile salmonid stranding in the lower Clackamas River associated with flow releases below River Mill Dam pursuant to Article [15]. The plan will provide that the Licensee shall fund up to \$50,000 of the cost of the study. The study will be conducted by a contractor selected by the Fish Committee, during the period from 3 to 7 years after license issuance. The plan will further provide that if the Fish Committee does not select a contractor, the Licensee shall conduct the study. Upon Commission approval, the Licensee shall implement the study. On completion of the study, the Licensee shall, after consultation with the Fish Committee, file with the Commission a report summarizing the study results.

Article 36. Annual Work Plans

- (a) The Licensee shall utilize annual work plans to document fish passage and protection actions to be implemented, develop passage effectiveness monitoring and evaluation studies, and propose management, monitoring and evaluation strategies for the coming year consistent with the Fish Passage and Protection Plan. The annual work plans shall include separate plans for each upstream or downstream fish passage evaluation or monitoring effort being conducted. The Licensee shall issue a draft annual work plan to the Fish Committee for review no later than January 1 of each calendar year, and after consultation with the Fish Committee and with the approval of the Fish Agencies, shall file the final annual work plan with the Commission, for approval, by April 1. Upon Commission approval, the Licensee shall implement the plan.
- (b) The Licensee shall file an annual report with the Commission before June 1 of each calendar year, documenting the activities of the previous year. The annual report will follow the format of the previously approved annual work plan, and shall be prepared in consultation with the Fish Committee. The annual report will include, but not be limited to:
 - (i) Numbers of fish by species moved upstream and downstream.
 - (ii) Upstream and downstream passage survival rates and progress related to achieving the standards in Articles [20, 23, and 24].
 - (iii) Estimates of fish mortality by species associated with the fish passage facilities.
 - (iv) Any changes in the work plan from adaptive management recommendations to the fish passage program that might resolve problems that have been identified.
 - (v) Fish protection actions, including associated monitoring, evaluations, and studies.

Article 37. Faraday Bypass Reach Pulsed Flow Study

- (a) Within 18 months of license issuance, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan to evaluate, in conjunction with the overall upstream passage study plan, the effectiveness of pulsed flows implemented pursuant to Exhibit B to the Settlement Agreement to improve upstream passage in the Faraday Diversion Reach.

The study plan shall be consistent with the description in the Fish Passage and Protection Plan, Section III.D, provided however, that the Fish Committee may modify that portion of that plan designed to evaluate the effectiveness of the pulsed flows based on the information gained during the evaluation of pulsed flows conducted prior to license issuance. Upon Commission approval, the Licensee will implement the plan.

- (b) Upon completion of the pulsed flow study, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report summarizing the results of the study and, if appropriate, proposing a revised pulsed flow protocol for the Faraday Diversion Reach. Upon Commission approval, the Licensee shall implement the protocol.

Article 38. Juvenile Salmonid Stranding Studies

- (a) Within six months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a study plan, to be initiated within one year of license issuance, to monitor the risk of juvenile salmonid stranding associated with the ramping rates below the Oak Grove Powerhouse in October established pursuant to Article [11]. The study shall be consistent with the study plan contained in Section IV of the Fish Passage and Protection Plan, Exhibit D to the Settlement Agreement. Upon Commission approval, the Licensee shall implement the study plan.
- (b) Upon completion of the juvenile salmonid stranding study, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a final report summarizing the result of the study and determining whether unacceptable juvenile salmonid stranding is occurring. If the report concludes that unacceptable stranding is occurring, it shall also include a request to the Commission, for approval, to change the down-ramping rate in October from 0.3 feet/hr to 0.17 ft/hr during any 1-hr period, when flows are less than 1,200 cfs. Upon Commission approval, the Licensee shall implement the modified down-ramping rate.
- (c) Within 12 months after completion the study described in paragraph (a) of this Article, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan for a study to verify the effectiveness of the ramping rates below the Oak Grove Powerhouse pursuant to Article [11]. The study will include monitoring over a range of flows and a range of sizes of juvenile salmonids. Upon Commission approval, the Licensee shall implement the plan in the first in water study period during which flows are appropriate to achieve the purposes of the study.

Article 39. Fish Protection Measures at the Oak Grove Development

(a) *Timothy Lake:*

- (i) Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and USDA-FS, file with the Commission, for approval, a final design and schedule to replace within two years after license issuance, (i) the top bar rack section of the Timothy Lake

intake structure with a solid panel increasing the depth of solid panel protection to 29' below the water surface at elevation. 3190, PGE datum, and (ii) the panels below this level with new 3/8" bar racks with 3/4" clear spacing. Upon Commission approval, the Licensee shall implement the design.

- (ii) Within 18 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and USDA-FS, file with the Commission, for approval, a plan for a study to monitor, for two years, the performance of the new bar racks. Upon Commission approval, the Licensee shall implement the monitoring study and upon completion of the study shall, after consultation with the Fish Committee, file a final report summarizing the results of the study with the Commission.

(b) ***Lake Harriet:***

- (i) Within six months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and USDA-FS, file with the Commission, for approval, the final design and schedule to construct, within two years of license issuance, facilities to provide the minimum baseflows required pursuant to Article [8] using water withdrawn through the existing bar rack at the Frog Lake pipeline intake and tunnel to a new pipeline ending at the river's edge in the area of the abandoned cinnabar mine (Crack in the Ground). The design shall not include the ability to provide flows greater than the baseflows required by Article [8].
- (ii) Within 18 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan for a three-year monitoring study to determine whether non-native fish are passing through the minimum flow system into the Oak Grove Fork. Upon Commission approval, the Licensee shall implement the monitoring study.
- (iii) Within six months after completing the monitoring study described in the preceding paragraph, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file a report summarizing the results of the study. If the report determines that unacceptably high numbers of non-native fish are escaping through the minimum flow releases, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies and USDA-FS, file with the Commission, for approval, a design to modify facilities at Lake Harriet to more effectively exclude the downstream movement of non-native fish. Upon Commission approval, the Licensee shall implement the design.

Article 40. Upstream Passage Plan for Adult Pacific Lamprey

(a) ***North Fork and River Mill Fish Ladder Improvements:***

- (i) Within 18 months of license issuance, the Licensee shall complete an evaluation of the physical and hydraulic conditions in the North Fork and River Mill Fish ladders needed to accomplish the Pacific lamprey passage standard required pursuant to Article [20]. The Licensee shall, after consultation with the Fish Committee and

with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of this evaluation. Within 12 months of Commission approval of this report, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan to undertake measures to correct potential passage problems for Pacific lamprey in the fish ladders and at the ladder entrances. The plan shall be based on the evaluations contained in the report and any other site-specific and regional information assembled by the Licensee. The plan shall be consistent with Section VI(A)(1) of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.

- (ii) The Licensee shall incorporate features into the design and construction of the new sorting/trapping facility in the North Fork Fish Ladder that allow monitoring of adult Pacific lamprey passage through the ladder and that permit the Licensee to identify and count all lamprey collected at fish counting facilities and determine species and life stage as feasible. The Licensee shall also prevent Pacific lamprey access to the existing North Fork trap facility after it has been decommissioned.
 - (iii) The Licensee shall identify and count adult Pacific lamprey collected at fish counting or sampling facilities at the Project and shall determine species and life stage as feasible. The Licensee shall, after consultation with the Fish Committee, file an annual summary of such data with the Commission.
- (b) ***Initial Capture and Haul Program:*** Within 24 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan to implement a two-year capture-and-haul program to move adult Pacific lamprey to the upper Clackamas basin. The plan shall provide that the capture-and-haul program will be simultaneous with the first two years of radio tracking studies described below, and will provide that one hundred Pacific lamprey will be collected each year from the River Mill and/or North Fork Fish ladders and transported upstream of North Fork Reservoir to establish juvenile rearing above the Project. The plan shall be consistent with Section VI(A)(2) of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.
- (c) ***Upstream Passage Monitoring Plan:*** Within two years of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, file with the Commission, for approval, a plan and schedule to determine passage effectiveness of adult Pacific lamprey through the Project area, as upstream passage facilities are improved. The monitoring shall be consistent with the requirements of Section VI(A)(3) of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan. The plan and schedule shall be consistent with Section VI of the Fish Passage and Protection Plan, and shall include the following components:
- (i) A two-year radio telemetry evaluation of Pacific lamprey passage and passage effectiveness through the Project area;

- (ii) A pilot study, including underwater observations, to determine methodologies to evaluate holding behavior of Pacific lamprey below River Mill Dam, and to evaluate River Mill Fish Ladder entrance success;
 - (iii) A second two-year radio telemetry evaluation of Pacific lamprey passage and passage effectiveness through the Project area, provided that, if in consultation with the Fish Committee, the Licensee determines that key study objectives are not met, the Licensee shall extend the study for up to 2 years;
 - (iv) A one-year radio telemetry evaluation of adult Pacific lamprey to determine areas of spawning in the Clackamas basin upstream of North Fork Reservoir and to inform when juvenile life-history and passage effectiveness monitoring should begin. If seven years after the installation of improvements to the North Fork fish ladder, the number of adult Pacific lamprey voluntarily passing through the North Fork ladder annually is not at least 300, the Licensee may determine, after consultation with the Fish Committee and with the approval of the Fish Agencies, if and when the radio-telemetry study should still be undertaken to determine when to begin juvenile monitoring.
 - (v) Upon completion of the monitoring, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the monitoring and determining whether there are Pacific lamprey passage problems that limit the ability of the upstream passage facilities at the Project to provide adult Pacific lamprey passage to the standard required in Article 20.
- (d) ***Modifications to Upstream Passage Facilities:*** If the report on passage effectiveness monitoring described in paragraph (c) of this Article identifies Pacific lamprey passage problems, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan and schedule for specific improvements to correct these problems and for subsequent evaluations to monitor the passage effectiveness of these improvements. Upon Commission approval, the Licensee shall implement the plan.
- (e) ***Interim Adult Capture-and-Haul Program:*** If the report on passage effectiveness monitoring described in paragraph (c) of this Article identifies limitations in the ability of the upstream fish passage facilities at the Project to provide adult Pacific lamprey passage to the standard required in Article 20, and if the Licensee determines, after consultation with the Fish Committee, that modifications to the facilities cannot be made or would be ineffective, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, determine whether upstream passage for Pacific lamprey is prudent and if it is, shall file a plan and schedule with the Commission, for approval, to re-institute a capture-and-haul program for adult Pacific lamprey as an interim management tool to be used until permanent solutions to the passage problem are implemented. Upon Commission approval, the Licensee shall implement the plan. The plan shall be consistent with Section VI of the Fish Passage and Protection Plan and shall include a two-year evaluation of the effectiveness of the capture-and-haul program.

Article 41. Downstream Passage Plan for Juvenile Pacific Lamprey

(a) *Juvenile Pacific Lamprey Counting and Sampling Facilities:*

- (i) The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, incorporate features into the design and construction of all downstream counting and sampling facilities that (1) include sampling areas for studies that require tagging or physical handling; (2) permit monitoring of juvenile Pacific lamprey passage through the facilities and (3) permit the Licensee to identify and count all juvenile Pacific lamprey collected at fish counting facilities and determine species and life stage as feasible. The Licensee shall include such features in the designs for such facilities filed with the Commission. Upon Commission approval, the Licensee shall implement such designs.
- (ii) The Licensee shall identify and count all juvenile Pacific lamprey collected at fish counting or sampling facilities at the Project and shall determine species and life stage as feasible. The Licensee shall, after consultation with the Fish Committee, file an annual summary of such data with the Commission.

(b) *Downstream Passage Monitoring Plan:* Within four years of license issuance, the Licensee shall, after consultation with the Fish Committee, and with the approval of the Fish Agencies, file with the Commission, for approval, a plan and schedule to monitor the downstream passage of juvenile Pacific lamprey through the Project area. The plan shall be consistent with Section VI of the Fish Passage and Protection Plan, and shall include the following components:

- (i) a plan to evaluate juvenile Pacific lamprey injury and mortality, including impingement, occurring at the juvenile bypass screen and collection facilities, including the new facilities at River Mill and North Fork dams, and at the Faraday powerhouse, if the Licensee constructs downstream collection and bypass facilities at that facility;
- (ii) a plan to estimate juvenile Pacific lamprey guidance efficiency at the juvenile bypass collection facilities at River Mill and North Fork dams, and at the Faraday Diversion Dam and Powerhouse, if the Licensee constructs downstream collection and bypass facilities at that facility, once it has been determined by the Fish Committee that such a study is technically feasible and that appropriate technology has been developed for studies of this type;
- (iii) a plan to estimate turbine mortality and injury to juvenile Pacific lamprey at the North Fork, River Mill, and Faraday powerhouses, once it has been determined by the Fish Committee that such a study is technically feasible and that appropriate technology has been developed for studies of this type;
- (iv) a plan for a pilot electrofishing effort, be undertaken after the third year of at least 300 adult Pacific lamprey passing volitionally through the North Fork fish ladder in order to determine the timing of studies of downstream Pacific lamprey passage through the project. The plan shall include potential sampling protocols and methods, and reporting requirements, in order to evaluate methodologies to determine the onset of juvenile out-migration of Pacific lamprey rearing in the Clackamas Basin upstream of the Project.

- (v) a plan for a larger electrofishing effort to determine the timing of juvenile downstream passage monitoring efforts at the project. The plan shall be undertaken four years after the pilot electrofishing effort identifies sites with larval Pacific lamprey, provided that, if inadequate numbers of metamorphosing Pacific lamprey are found during upper basin electrofishing pursuant to the preceding paragraph, the Fish Committee will determine if and when additional years of evaluating juvenile Pacific lamprey metamorphosis and the onset of downstream migration are warranted. The plan shall include sampling protocols and methods, and reporting requirements.
- (vi) A plan to monitor collection facilities at North Fork and River Mill dams, and to install a trap in the Faraday Canal, in order to evaluate passage of juvenile Pacific lamprey through the Project area and the new downstream passage facilities, starting at the time determined by the effort described in paragraph (b) (v) of this Article.

Upon Commission approval, the Licensee shall implement the monitoring plan. Upon completion of the monitoring, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report, describing the results of the study and determining whether additional measures are needed to reduce injury and mortality to juvenile Pacific lamprey migrating through the Project area to meet the standard specified in Article 20.

(c) *Modifications to Downstream Passage Facilities:*

- (i) If the evaluations described in paragraph (b) of this Article identify measures that are needed to reduce injury and mortality to juvenile Pacific lamprey migrating through the Project area to meet the standard specified in Article [20], the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan and schedule to complete, within three years of completion of the evaluations, the modification of existing Project facilities to implement additional measures identified by the evaluations, as appropriate. The plan and schedule shall be consistent with Section VI of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.
- (ii) If a regional juvenile Pacific lamprey passage standard is adopted by the USFWS, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a plan for and schedule to implement modification to Project facilities necessary to meet the standard. The plan and schedule shall be consistent with Section VI of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.

Article 42. Cutthroat Trout Measures

(a) *Culvert Replacement:*

- (i) Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file

with the Commission, for approval, a plan to provide for the replacement of the culvert where USDA-FS Road 5890 crosses Dinger Creek. The plan shall be consistent with the terms of Section VII of the Fish Passage and Protection Plan. Following Commission approval, Licensee shall implement the plan.

- (ii) Within five years of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan to provide for the replacement, within six years of license issuance, of the culvert where USDA-FS Road 5700 crosses Anvil Creek. The plan shall be consistent with the terms of Section VII of the Fish Passage and Protection Plan. Following Commission approval, Licensee shall implement the plan.

(b) Dinger Creek Habitat Enhancement:

- (i) Within 18 months of license issuance, the Licensee shall after consultation with the Fish Committee and with the approval of the Fish Agencies and USDA-FS, file with the Commission, for approval, the design for the construction of habitat improvements on Dinger Creek using large wood structures. Upon Commission approval, the Licensee shall implement the design.
- (ii) The Licensee shall inspect the habitat improvements on Dinger Creek during the year after installation and again every five years, or after large flow events (25-year event or greater), whichever is less. After each inspection, the Licensee shall report to the Fish Committee and recommend repairs, modifications, or reconstruction, as appropriate, to maintain the effectiveness of the structures. After consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, the Licensee shall file a plan with the Commission to undertake the repairs, modifications, or reconstructions. Upon Commission approval, the Licensee shall implement the plan.

(c) Cutthroat Trout Study Plan: Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan to study and monitor cutthroat trout in Timothy Lake and in the Oak Grove Fork below Timothy Lake Dam. The plan shall be consistent with the provisions of Section VII of the Fish Passage and Protection Plan, and shall include sampling and monitoring protocols, estimates of cutthroat trout populations in Timothy Lake, studies of cutthroat trout movements in the Oak Grove Fork below Timothy Lake Dam, and the logistics necessary for implementation of the spawning disruption program. The plan shall provide that stream monitoring will take place every sixth year, and lake trap monitoring will be conducted annually.

- (i) The study shall also include a one-year radio-telemetry study of adult cutthroat trout migration between Lake Harriet and Timothy Lake, including the Stone Creek Diversion reach, to be initiated during the second full year after license issuance.
- (ii) The study shall include a one-year study to assess whether adult cutthroat trout are staging at the base of Timothy Lake during the spring migration period, to be initiated during the second full year after license issuance.

Upon Commission approval, the Licensee shall implement the study. Upon completion of the study, the Licensee shall, after consultation with the Fish Committee file with the Commission, for approval, a report, describing the results of the study.

(d) Disruption of Brook Trout and Kokanee Spawning in Timothy Lake Tributaries:

- (i) Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan to disrupt brook trout and kokanee spawning in tributaries to Timothy Lake. The plan shall be consistent with the provisions of Section VII of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.
- (ii) The spawning disruption plan will include a provision for the Licensee, in consultation with the Fish Committee, to evaluate the effectiveness of the spawning disruption program during the eighth year after license issuance. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report of the results of its evaluation and recommending whether the spawning disruption program should be continued. If the report concludes that the spawning disruption plan should not be continued, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, include in the report a plan to spend the funds that would otherwise be spent on the spawning disruption program to other mitigation projects related to cutthroat trout in the Oak Grove Fork. Annual funding will be equivalent to the average annual cost—escalated to account for inflation—of the spawning disruption program during Years 3 through 7, when weir placement and fish population monitoring in Timothy Lake had both been conducted. In no event shall the initial annual amount be less than \$5,000. If during a given year no mitigation projects are identified, the funds for that year, plus any funds accrued from previous years, will accrue to the following year. Upon Commission approval of the report, the Licensee shall implement the plan.
- (iii) If in an assessment in Year 8 of the success of the spawning disruption program, the Licensee determines, after consultation with the Fish Committee and with the approval of the Fish Agencies, to continue the spawning disruption program, the Licensee shall, in consultation with the Fish Committee, conduct subsequent evaluations of monitoring results every six years. Based on the results of this monitoring, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies, file with the Commission, for approval, a report of the results of each evaluation and recommending whether the spawning disruption program should be continued. If the report concludes that the spawning disruption plan should not be continued, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, include in the report a plan to spend the funds that would otherwise be spent on the spawning disruption program to other mitigation projects related to cutthroat trout in the Oak Grove Fork. Annual funding will be equivalent to the average annual cost—escalated to account for inflation—of the spawning disruption program at the time of the decision to discontinue the spawning disruption program. In no event shall the initial annual amount be less than \$5,000. If during a given year no

mitigation projects are identified, the funds for that year, plus any funds accrued from previous years, will accrue to the following year. Upon Commission approval of the report, the Licensee shall implement the plan.

- (iv) If the brook trout and kokanee spawning disruption program is discontinued, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan for continuing population monitoring of cutthroat trout, which shall, at a minimum, provide for lake trapping every fifth year. Upon Commission approval, the Licensee shall implement the plan.

(e) Reconnection of Cutthroat Trout Populations:

Based on information collected during the study performed pursuant to paragraph (c) of this Article, the Licensee shall consult with the Fish Committee to determine if the Licensee should transfer cutthroat trout from below Timothy Lake Dam to above the dam and shall, with the agreement of the Fish Committee, engage a population conservation geneticist to advise the Fish Committee on the potential benefit of fish transfer, appropriate components of a protocol for fish transfer, possible means to evaluate the effectiveness of such a program, and ways to avoid undesirable risks to upstream and downstream cutthroat trout populations. The Licensee shall prepare a report, in consultation with the Fish Committee and with the approval of the Fish Agencies, determining whether a reconnection program should be initiated. If such a determination is made, the Licensee shall develop, in consultation with the Fish Committee a plan, consistent with Section VII of the Fish Passage and Protection Plan, for a reconnection program. Upon approval of the plan by the Fish Agencies and the USDA-FS, the Licensee shall file the plan with the Commission for approval. Upon Commission approval, the Licensee shall implement the plan.

(f) Habitat Enhancements between Timothy Lake Dam and Hammer Springs:

- (i) Within 12 months of license issuance, the Licensee shall, in consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan consistent with Section VII of the Fish Passage and Protection Plan, for enhancement of the habitat between Timothy Lake Dam and Hammer Springs and an associated post-enhancement habitat assessment, including measurement and evaluation protocols. The plan shall provide that during the second year following license issuance the Licensee shall conduct a habitat evaluation of the reach between Timothy Lake Dam and Hammer Springs prior to implementation of habitat enhancement measures. Upon Commission approval, the Licensee shall implement the plan.
- (ii) Within 12 months after completion of habitat enhancement measures, every eight years thereafter, and following spill events at Timothy Lake Dam, the Licensee shall conduct post-enhancement habitat assessments using the measurement and evaluation protocols approved by the Commission in the preceding paragraph. The Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a report summarizing each assessment and, if such enhancements have not maintained at least 80% of the habitat measured in the initial post-enhancement

assessment, proposing modifications or improvements to the remaining habitat enhancements. Upon Commission approval, the Licensee shall implement the modifications or improvements during the next in-water work period.

- (iii) Within 12 months after completing the habitat modifications or improvements, the Licensee shall conduct a post-enhancement habitat assessment using the measurement and evaluation protocols approved by the Commission in paragraphs (f)(i) and (ii) of this Article. If the modifications or improvements have failed to produce at least 80% of the habitat measured in the initial post-enhancement assessment, the Licensee shall make additional modifications until at least 80% of the habitat measured in the initial post-enhancement assessment has been provided.

Article 43. Upper Oak Grove Fork Flow Assessment

Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan for a two-year study to assess the effects on the Upper Oak Grove Fork of the minimum flows required pursuant to Article [6]. The plan shall be consistent with Section VII of the Fish Passage and Protection Plan, and shall provide for the provision of progress reports to the Fish Committee and a final report, after consultation with the Fish Committee, to the Commission. Upon Commission approval, the Licensee shall implement the plan.

Article 44. Lower Oak Grove Mitigation Measures

(a) *Side Channel Enhancements:*

- (i) Within 12 months after license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a side channel habitat enhancement plan (Side Channel Plan) intended to provide, as a result of increased baseflows pursuant to Article [8] and specific side channel enhancement projects, a total of 40,000 ft² of 1+ coho side channel habitat in the Oak Grove Fork below Lake Harriet Dam. The plan shall provide for these measures to be completed within five years of license issuance. Upon Commission approval, the Licensee shall implement the plan.
- (ii) Within one year after the completion of each side channel enhancement project undertaken pursuant to the Side Channel Plan, the Licensee shall measure and evaluate, based on the methodology described in Section VII of the Fish Passage and Protection Plan, the total amount of 1+ coho side channel habitat created that provides greater than 0.6 depth and velocity habitat suitability value. Following the completion of the last side channel project and evaluation, the Licensee shall, after consultation with the Fish Committee, file with the Commission, for approval, a report documenting the side channel habitat created.
- (iii) Following completion of all side channel projects, the Licensee shall annually conduct a “walk through” inspection of the side channel projects, consistent with the terms of Section VII of the Fish Passage and Protection Plan. If the amount of

side channel habitat available has dropped to less than 25,500 ft², the Licensee shall undertake appropriate actions to increase the amount of habitat available to more than 25,500 ft². The Licensee shall make these repairs as soon as possible, but in no event later than the following year's in-water work period.

- (iv) Every 5 years thereafter and after any 25 year flow event, the Licensee shall re-measure and evaluate the amount and quality of 1+ coho side channel habitat. If the re-measuring and evaluation is triggered by a 25 year flow event, the next evaluation shall take place 5 years following that flow event or after the next 25 year flow event, whichever is sooner. The Licensee shall report the results of this evaluation to the Fish Committee and the Commission. If the evaluation shows that the amount of available side channel habitat is below 34,000 ft², the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a plan to make a total of approximately 40,000 ft² of side channel habitat available. Upon approval by the Commission, the Licensee shall implement the plan.

(b) Main Stem Oak Grove Fork Enhancements

- (i) Within three years after license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission, for approval, a mainstem habitat enhancement plan (Mainstem Plan) intended to provide enhancements to the mainstem channel, anadromous salmonid habitat in the Oak Grove Fork below Lake Harriet Dam. Consistent with the terms of Section VIII of the Fish Passage and Protection Plan, the Mainstem Plan shall include a fish habitat structure component and a gravel augmentation component. The Mainstem Plan shall also include a monitoring, maintenance, construction and administrative component for the Oak Grove Fork that provides for funding of the USDA-FS to perform activities pursuant to annual work plans prepared by the Licensee in consultation with the Fish Committee pursuant to Section VIII.B of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.
- (ii) Each year after Commission approval of the Mainstem Plan, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission for approval, an annual work plan to provide funding for the USDA-FS to perform activities consistent with the provisions of the Mainstem Plan. Pursuant to the annual work plan, the Licensee shall provide funding, to the limits contained herein, for the USDA-FS to implement the annual work plan. Starting in the year of construction of the habitat structures and continuing for a period of 10 years, the Licensee shall provide \$15,000 annually to the USDA-FS, after which the annual contribution will be reduced to \$7,500 for the remainder of the license term. If the funds provided annually are less than these amounts, the balance may be carried over to subsequent years for implementation of future annual work plans.
- (iii) Each year after Commission approval of the Mainstem Plan, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission for approval, a report

assessing whether the USDA-FS is adequately implementing the annual work plan pursuant to the preceding paragraph, and recommending whether the Licensee should assume such responsibilities directly. The report shall provide that if the Licensee assumes these responsibilities, funding provided to the USDA-FS under the preceding paragraph will be terminated. Upon Commission approval of the report, the Licensee shall, if appropriate, assume responsibility for implementing the annual work plan.

(c) ***Biological Monitoring***

Within 12 months of license issuance, the Licensee shall, after consultation with the Fish Committee and with the approval of the Fish Agencies and the USDA-FS, file with the Commission for approval a biological monitoring plan for the Lower Oak Grove Fork below Lake Harriet Dam. The plan shall have components for evaluating the potential for dewatering steelhead redds, sampling outmigrating juvenile salmonids for ten years, and evaluating the use of the lower Oak Grove Fork by spring Chinook, and shall be consistent with the requirements described in Section VIII.B.3 of the Fish Passage and Protection Plan. Upon Commission approval, the Licensee shall implement the plan.

Article 45. Hatchery Funding

- (a) ***Hatchery Agreement:*** Within 12 months of license issuance, the Licensee shall enter into with Oregon Department of Fish and Wildlife (ODFW) and file with the Commission, for approval, an agreement that provides for partial funding of the operation of the ODFW Clackamas River Hatchery and for funding of specified studies and improvements to the Hatchery. Prior to approval of the agreement, the Licensee shall provide ODFW with funding as set forth in paragraph (b)(i) for the marking of Clackamas River Hatchery fish and for the production of spring Chinook at the Clackamas River Hatchery.
- (b) The hatchery agreement shall be consistent with the term sheet attached as Exhibit K to the Settlement Agreement, and shall include the following components:
- (i) **Hatchery Production:** Starting the calendar year upon license issuance, the Licensee shall provide ODFW \$100,000/year for five years, including any funds provided to ODFW during negotiation of the hatchery agreement, and \$50,000/year for the next five years for the marking of Clackamas River Hatchery fish and for the production of spring Chinook at the Clackamas River Hatchery. This obligation shall cease in 2009 if ODFW has not terminated the summer releases of spring Chinook into the Clackamas River. The Licensee's funding obligation shall not exceed a total of \$750,000 for these purposes, including any funds provided during negotiation of the hatchery agreement.
- (ii) **Hatchery Monitoring:** Within 12 months of license issuance the Licensee shall, in cooperation with ODFW and after consultation with the Fish Committee, develop an annual monitoring plan, consistent with the requirements of Exhibit K to the Settlement Agreement, to assess the impacts that hatchery-produced anadromous salmonids are having on wild anadromous salmonids in the Clackamas River.

- (iii) Hatchery Improvements: By year 11 of the license, the Licensee shall develop, in cooperation with ODFW and after consultation with the Fish Committee, a plan, consistent with the requirements of Exhibit K to the Settlement Agreement, to implement improvement measures, excluding increased hatchery production, to reduce the impacts that hatchery-produced anadromous salmonids are having on wild anadromous salmonids in the Clackamas River.
- (c) **Reporting:** The Licensee shall provide the following reports to the Commission and the Fish Committee:
 - (i) The Licensee shall file with the Commission, a copy of ODFW's annual report documenting spring Chinook production at the Clackamas River Hatchery during funding by the Licensee for marking and production as described in paragraph (b)(i). The Licensee may contract with ODFW to prepare this report, which shall include sufficient accounting detail to demonstrate that ODFW use the funding provided by the Licensee for marking Clackamas River hatchery fish and spawning and rearing Spring Chinook at the hatchery.
 - (ii) Simultaneously with its distribution to the Fish Committee, the Licensee shall provide the Commission a copy of the annual report on monitoring efforts.
 - (iii) Not later than April 1 of each year, the Licensee shall file with the Commission a report describing specific improvements to the Clackamas River Hatchery undertaken as a result of the monitoring program.

Article 46. Gravel Augmentation Below River Mill Dam

Within six months of license issuance, the Licensee shall, after consultation with the Fish Committee, file with the Commission, for approval, a detailed gravel augmentation plan consistent with Section IX and Appendix F of the Fish Passage and Protection Plan, below River Mill Dam. The Gravel Augmentation Plan will provide for (i) two years of baseline data collection and sediment transport modeling, (ii) completion of permitting and construction of necessary facilities within five years of license issuance, (iii) five years of initial augmentation, (iv) annual evaluation throughout the first five years of augmentation, (v) continued annual augmentation, as modified, in consultation with the Fish Committee, based on the first five years of augmentation, and (vi) the evaluation and modification, in consultation with the Fish Committee, of the Gravel Augmentation Plan every five years thereafter. Upon Commission approval, the Licensee shall implement the plan.

Article 47. Large Wood Management

- (a) **North Fork Reservoir:** The Licensee shall manage large woody debris captured in the North Fork Reservoir in accordance with Section IX of the Fish Passage and Protection Plan, Exhibit D to the Settlement Agreement.
- (b) **Lake Harriet:** The Licensee shall transport all woody debris captured in Lake Harriet around Lake Harriet Dam and place it back in the Oak Grove Fork below the dam or at the nearest feasible downstream access point in the Oak Grove Fork below Lake Harriet Dam.

- (c) **Reporting:** Not later than April 1 of each year, starting the second calendar year after license issuance, the Licensee shall provide the Fish Committee and the Commission with a report on the quantity of woody debris (including the sizes of pieces and volume of woody debris) captured, transported, and placed during the prior calendar year.

Article 48. Clackamas River Hydroelectric Project Mitigation and Enhancement Fund

- (a) Within 24 months of license issuance, the Licensee shall establish the Clackamas River Hydroelectric Project Mitigation and Enhancement Fund (the “Fund”) in the initial amount of a \$500,000 credit (2006 dollars) to fund enhancement projects for fish resources and habitats in the Clackamas River Basin. The Fund shall be a tracking account held by Licensee with all accrued interest being credited to the Fund. The Fund shall be dedicated to the funding of enhancement projects in accordance with this license article. Following this initial credit, the Licensee shall make periodic credits as specified below on the anniversary of the issuance date of the license:

Anniversary of License Issuance	Amount (2006 dollars)
5 th	\$ 3,000,000
10 th	\$ 3,000,000
20 th	\$ 1,500,000

Amounts credited to the Fund shall be escalated as provided in the Clackamas River Hydroelectric Project Mitigation and Enhancement Fund Implementation Plan, Exhibit H to the Settlement Agreement (the “Mitigation Fund Implementation Plan”).

- (b) The Licensee shall not use amounts credited to the Fund to defray the cost of administrative, legal, and overhead costs associated with the management of the Fund, which shall be borne by the Licensee. Any funds remaining unexpended at the end of the license term, including any annual licenses, shall be returned to the Licensee.
- (c) The Licensee shall utilize the Fund in accordance with the provisions of the Mitigation Fund Implementation Plan. Any revisions to the Mitigation Fund Implementation Plan shall only be implemented after Commission approval.
- (d) By March 31 of each year during the license term, Licensee shall provide to the Commission for approval and to the parties to the Settlement Agreement an annual written report setting forth and describing all Fund activity during the previous calendar year. In addition to any other Fund activity, this report shall list withdrawals from the Fund for mitigation and enhancement projects and itemize costs associated with each project. The Licensee shall prepare the report in accordance with the Mitigation Fund Implementation Plan, Exhibit H to the Settlement Agreement, as approved by this order, after consultation with the Mitigation Fund Committee provided for in Exhibit H of the Settlement Agreement, or, if the Settlement Agreement has become void, in consultation with any agencies, entities, or non-governmental organizations previously

represented on the Mitigation Fund Committee (the Successor Agencies). When a draft report has been prepared, it shall be provided to the Mitigation Fund Committee or the Successor Agencies, as applicable, for 30-day review and comment.

Article 49. Reservation of Authority: Fishways

Pursuant to Section 18 of the Federal Power Act, 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 either the Secretary of the Interior or the Secretary of Commerce.

Terrestrial Resource Conditions

Article 50. Terrestrial Resources Management Plan

- (a) The Licensee shall implement the Terrestrial Resources Management Plan (TRMP), Exhibit E-1 to the Settlement Agreement.
- (b) The Licensee shall file with the Commission, after consultation with the TRWG, an annual report documenting the previous year's terrestrial related activities, including implementation of the Terrestrial Resources Monitoring Plan, the Terrestrial Resources Connectivity Plan, and the Species Disturbance Plan components of the TRMP, as well as the Vegetation Management Plan.

Article 51. Vegetation Management Plan

The Licensee shall implement the Vegetation Management Plan, Exhibit E-2 to the Settlement Agreement.

Article 52. Wetlands Mitigation Plan

- (a) Within 18 months of license issuance, the Licensee shall, after consultation with the Terrestrial Resources Work Group, file for Commission approval a Wetlands Mitigation Plan to implement, within three years of license issuance, wetlands restoration projects at (i) the Davis Ranch site owned by the Licensee within the Mt Hood National Forest; and (ii) a wetland site owned by the Licensee near Promontory Park, above the North Fork Reservoir. The plan shall include provisions to bring the Davis Ranch and Promontory Park sites into the Project boundary.
- (b) Within 12 months of license issuance, the Licensee shall, after consultation with the TRWG, file a report with the Commission documenting an agreement to provide funds, not to exceed \$800,000, to the Western Rivers Conservancy to facilitate the purchase by the Western Rivers Conservancy and transfer of ownership to the USDA-FS of a 320-acre parcel, located near North Mountain in the headwaters of the Little Sandy River in the Bull Run watershed, in order to protect a wetland located on that parcel. Within 24 months of license issuance, the Licensee shall file a report with the Commission documenting the provision of funds to Western Rivers Conservancy and

the completion of the transaction transferring ownership to the USDA-FS. If the North Mountain site has been transferred to the USDA-FS, it shall not be brought into the Project boundary. If the Licensee determines that the North Mountain project is infeasible, the Licensee shall consult with the TRWG to determine if it is possible to substitute a project of comparable value to North Mountain. If a project of comparable value is identified, the Licensee shall, after consultation with the TRWG, file a report and schedule with the Commission to implement the project. If no project of comparable value can be identified, the Licensee shall, after consultation with the TRWG, report to the Commission.

Recreation, Aesthetics, and Cultural Conditions

Article 53. Historic Properties

The Licensee shall implement the “Programmatic Agreement (PA) between the Federal Energy Regulatory Commission and the State of Oregon, State Historic Preservation Officer for Managing Historic Properties That May be Affected By A License Issuing to Portland General Electric Company for the Continued Operation of the Clackamas River Hydropower Project in Clackamas County Oregon”, executed on __, 2006, including but not limited to the final Historic Properties Management Plan (HPMP) for the Project (Exhibit J of the Settlement Agreement). In the event that the Programmatic Agreement is terminated, the Licensee shall implement the provisions of the final HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the HPMP, the Licensee shall obtain approval 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 effect.

Article 54. Recreation Resources Management Plan

- (a) The Licensee shall implement the Recreation Resources Management Plan (RRMP), Exhibit G to the Settlement Agreement.
- (b) The Licensee shall file with the Commission, after consultation with the Recreation Resources Work Group, an annual report documenting the implementation of the RRMP. The annual RRMP report shall:
 - (i) Identify the measures implemented as scheduled in the RRMP;
 - (ii) Identify next year’s proposals for implementing scheduled recreation management actions;
 - (iii) Reconcile and document differences between each year’s proposals and any replacement or additional measures agreed upon by the Licensee and the affected agencies;
 - (iv) Document consultation related to the RRMP;
 - (v) Document the results of monitoring of completed actions (to the extent monitoring is necessary for any particular action) to ensure proper implementation and effectiveness.

Article 55. Project-related Road Maintenance

Within 24 months of license issuance, the Licensee shall file for Commission approval a Project-related Road Maintenance Plan to provide for the shared maintenance, repair, and rehabilitation of USDA-FS roads in the vicinity of the Oak Grove Development of the Project. The plan shall be consistent with the Term Sheet: Maintenance of USDA-FS Roads, Appendix E to the Settlement Agreement. The plan shall include provisions for the Licensee to enter into an agreement with the USDA-FS (i) to implement the Appendix E to the Settlement Agreement, and (ii) to document funding to the USDA-FS annually..

The Licensee shall prepare the plan after consultation with the USDA-FS. The Licensee shall include with the plan, an implementation schedule, road maintenance standards attached to Exhibit L, and safety measures to be used during maintenance activities. Upon Commission approval, the Licensee shall implement the plan.