

**Clean Water Act § 401 Certification Conditions**  
**For the Hells Canyon Complex Hydroelectric Project**  
**(FERC No. P-1971)**

Malheur, Baker, and Wallowa counties, Oregon

Powder Basin, Grande Ronde Basin, Oregon

The Idaho and Oregon Departments of Environmental Quality are hereinafter separately referred to as “IDEQ” and “ODEQ,” respectively, and collectively referred to as the “DEQs”.

Upon Federal Energy Regulatory Commission (“FERC”) issuance of a license to Idaho Power Company for the Hells Canyon Complex Hydroelectric Project (“Project”), Idaho Power Company must comply with the following § 401 Certification conditions:

**I. Project Operation**

The proposed operations are as particularly described in Exhibit A, which is incorporated here in its entirety by this reference. In accordance with applicable law, IPC shall notify the DEQs if FERC authorizes modification to these operations so as to allow the DEQs to determine whether such changes may affect compliance with water quality standards.

**II. Temperature**

A. **Required Actions.** Idaho Power Company (“IPC”) shall take the following actions, which are further detailed in the conditions set out below, in order to comply with the Snake River-Hells Canyon Total Maximum Daily Load (“TMDL”) temperature load allocation, the Oregon and Idaho salmonid spawning criteria (IDAPA 58.01.02.286; OAR 340-041-0028(4)(a)), and migration corridor temperature criteria (OAR 340-041-0028(4)(d)) (“applicable temperature criteria”):

1. Implement a Temperature Management and Compliance Plan (“TMCP”); and
2. Attain the Year 15 and 30 year thermal load reductions (“required thermal benefits”); or attain the TMDL temperature load allocation and applicable temperature criteria as provided in the approved Temperature Alternative Measures Plan (“TAMP”).

B. **Required Thermal Benefits.** IPC shall attain thermal benefits of 1211.6 billion kilocalories (“bkcal”) at the inflow to the Project by 30 years after the date that FERC issues a new license for the Project. IPC shall maintain the required thermal benefits throughout the term of the FERC license. No later than 15 years after the date that FERC issues the new license, IPC shall attain thermal benefits of 605.8 bkcal at the inflow to the Project. Or, if an alternative measure is implemented, IPC shall attain the TMDL

temperature load allocation and applicable temperature criteria as provided in the approved TAMP.

**C. Implementation of the TMCP.**

1. IPC shall implement the TMCP in order to attain the required 15 and 30 year required thermal benefits. The TMCP shall include the Snake River Stewardship Program (“SRSP”) that is specifically described in Exhibit 7.1-1 of the Application, which by this reference is incorporated in its entirety. The TMCP shall also include a temperature monitoring plan, as described in this section II.D below.
2. As part of the TMCP, IPC shall implement the SRSP, which includes the development and implementation of measures upstream of the Project in the mainstem of the Snake River and in tributaries to the Snake River, in order to attain the required thermal benefits. The thermal benefits attained by IPC through the implementation of the SRSP shall be determined as described in Section 2.3 of Exhibit 7.1-1 of the Application.
3. The selection, design, implementation, monitoring and maintenance of specific SRSP projects shall be in accordance with Restoration Quality Standards and Guidelines (“Restoration Standards”) developed by IPC and described in Section 2.5.1 and Attachment 1 of Exhibit 7.1-1 of the Application. As part of the annual reporting process set forth in this section II.E below, IPC may propose modifications to the Restoration Standards to reflect information gathered from the implementation of projects. If approved by ODEQ, the modified Restoration Standards shall apply to all SRSP projects constructed after the date the modified Restoration Standards are approved.
4. SRSP projects that are confirmed to be implemented consistent with the project design and the approved Restoration Standards shall count towards the required thermal benefits. The thermal benefits for a project shall continue to be counted towards the required thermal benefits as long as monitoring establishes that the project is maintained in accordance with the Restoration Standards.
5. As part of the annual and five-year reporting set forth in this section II.E below, IPC shall describe the SRSP projects implemented, the status of maintenance on all projects, and the thermal benefits IPC attributes to any project. Thermal benefits shall count towards the required thermal benefits if ODEQ, after consultation with IDEQ, concurs that the project has been implemented and maintained in accordance with the Restoration Standards. If ODEQ finds that a project is not implemented or maintained in accordance with the Restoration Standards, or fails the program audits, IPC shall not count the thermal benefits of such project towards the required thermal benefits unless subsequent monitoring shows the project is in compliance. Information obtained from monitoring will be used to inform the thermal benefit calculation for future projects, but will not be used to adjust credits already assigned to existing approved projects. Following review of the annual and five-year reports, ODEQ shall notify IPC of the results of its review of projects, and the amount of thermal benefits claimed by IPC that count towards the required thermal benefits.

D. **Monitoring.** IPC shall monitor projects described in the SRSP and in accordance with the Restoration Standards. Within 90 days of the date of FERC's issuance of a new license for the Project, IPC shall submit to the DEQs for approval a Temperature Monitoring Plan. Once approved by ODEQ, after consultation with IDEQ, IPC shall implement the Temperature Monitoring Plan. IPC may submit proposed revisions to the Temperature Monitoring Plan and, if approved by ODEQ, after consultation with IDEQ, IPC shall implement the revised plan in accordance with ODEQ's approval. The Temperature Monitoring Plan shall include the following components:

1. Proposed temperature monitoring locations. Locations shall be proposed that are representative of the Snake River flowing into Brownlee Reservoir, within Brownlee Reservoir, within Oxbow Reservoir, within Hells Canyon Reservoir and within three miles downstream of the Hells Canyon Dam.
2. Proposed data collection equipment and procedures.
3. Proposed frequency of monitoring.
4. A project-specific *Quality Assurance Project Plan* ("QAPP"); and
5. A proposal for data analysis and reporting.

E. **Reporting.** IPC shall provide the following reports to ODEQ:

1. **Annual Temperature Reports.** At the end of each calendar year following the issuance of the new FERC license for the Project, IPC shall provide an Annual Report that complies with the requirements of subsection (3) of OAR 340-039-0017 including but not limited to the following:
  - a. The results of the required monitoring of SRSP projects.
  - b. A description of the SRSP projects implemented in that year, the status of implementation of all projects, expected completion date and any other information necessary to determine if a project has been implemented and maintained in accordance with Restoration Standards. IPC shall include a map showing the location of all projects implemented to date.
  - c. The thermal benefits IPC attributes to any projects implemented in that year. For projects implemented in prior years, a statement as to whether the project is being maintained in accordance with Restoration Standards and if so, the thermal benefits IPC claims from those projects.
  - d. A description of the proposed projects scheduled for implementation in the next year or future years, including IPC's estimate of those projects' aggregate thermal benefits.
  - e. An audit review report, including a summary of whether the sites surveyed complied with the acceptance threshold for the audit and any remediation activities if necessary.

- f. The cumulative thermal benefits from that year and past years, and IPC's assessment of whether implementation of the TMCP, including the SRSP, is reasonably likely to achieve the 15 and 30 year required thermal benefits.
- g. A report of daily maximum temperature and associated data files measured within three miles downstream of Hells Canyon dam, including a comparison between this data and data representing inflow to Brownlee and outflow temperatures in the Snake River below Hells Canyon dam.
- h. IPC may include a request for the DEQs to consider approval of alternative or additional measures, including but not limited to Plan B as described in Section 7.1.2.4.1.1 and Exhibits 7.1-2 and 7.1-3 of the Application, hereinafter referred to as "Plan B", which by this reference is incorporated in its entirety. As used in this section II, "Alternative Measures" are methods or approaches not included in the TMCP that will provide, or assist in providing, reasonable assurance that the required thermal benefits will be achieved, or in the case of Plan B, reasonable assurance that the TMDL temperature load allocation and applicable temperature criteria will be met. The DEQs shall review such a request as provided in this section II.F below. Such a request shall include the following:
  - i. The basis or reasons why IPC considers Alternative Measures to be necessary or appropriate.
  - ii. A detailed description of proposed Alternative Measures.
  - iii. An analysis of how the Alternative Measures will provide, or assist in providing, reasonable assurance that the required thermal benefits will be attained.
  - iv. A statement of whether the proposed Alternative Measures will cause or contribute to a violation of applicable water quality standards.

**2. DEQs Response to Annual Reports.**

- a. The DEQs shall review Annual Reports to determine whether SRSP projects were implemented and maintained in compliance with Restoration Standards. If ODEQ, after consultation with IDEQ, does not concur that projects were implemented and maintained in compliance with Restoration Standards, the ODEQ shall notify IPC of the amount of thermal benefits in that year that shall be counted towards the required thermal benefits.
- b. ODEQ shall notify IPC whether they approve of or reject any amendment to the TMCP to address issues associated with implementation.
- c. The DEQs shall respond to any Alternative Measures request as provided in this section II.F below.

3. **Five-Year Reports.** At the end of every fifth calendar year following the issuance of a new FERC license for the Project, IPC shall provide a Five-Year Report that includes the following:
  - a. All the required elements of the annual report for that year.
  - b. Summary of data analysis, progress on implementation of the TMCP, and program effectiveness during the five-year-review period.
  - c. Identification of any data gaps, program inefficiencies or challenges.
  - d. An evaluation of observed changes occurring relative to pre-SRSP project conditions in monitored implemented projects (including vegetation, hydrology, morphology).
  - e. A summary and evaluation of changes in applicable laws or regulations related to the regulatory baseline in the SRSP program area that may affect the thermal benefits assigned to projects and otherwise as required by OAR 340-039-0030.
  - f. Any proposed changes to Restoration Standards, including changes to modeling of thermal benefits. Any such changes must be approved by ODEQ, after consultation with IDEQ, before implemented by IPC.
  - g. Summary of thermal benefits associated with previously implemented projects that were not previously quantified, including any benefits unquantified due to a lack of data or recognized methodology. New benefits not previously quantified can only be counted towards meeting the required thermal benefits if ODEQ, after consultation with IDEQ, approves the data and methodology for determining such benefits.
  - h. Non-temperature benefits calculated, projected or observed specific to projects that have been implemented. This includes a discussion of progress towards meeting the non-temperature related goals of the in-stream work in the mainstem Snake river and the upland sediment reduction program as well as non-temperature benefits of the tributary restoration work. With respect to the upland sediment reduction program, a description of the projects implemented, acreage treated and amount of sediment reduced in the five-year period.
  - i. Summary of any new SRSP restoration actions and quantification methodologies proposed.
  - j. Estimates of current trajectory of thermal benefits to achieve modeled conditions. A report and consolidation of the previous annual summaries of the progress toward achieving the required thermal benefits, including an analysis and updated assessment of whether the program is reasonably likely to achieve compliance with the 15 and 30 year required thermal benefits.
4. **DEQs Response to Five-Year Reports.** The DEQs shall respond to a Five Year Report as follows:

- a. With respect to information that must or may also be included in the Annual Reports, the DEQs shall respond as set forth in this section II.E.2 above.
- b. ODEQ shall notify IPC whether it approves of or rejects any changes to the Restoration Standards proposed by IPC.

F. **Alternative Measures.** The process and the standard for determining whether Alternative Measures are required are set forth below.

1. **IPC Proposal.** In any Annual or Five-Year Report, IPC may include a request for the DEQs to consider approval of Alternative Measures.
  - a. Within 60 days of the receipt of IPC’s proposal, ODEQ shall meet with IPC and discuss the proposal and any additional information that may be required by ODEQ in order to make a determination.
  - b. Within 90 days of the meeting and the submission of additional information, whichever occurs later, ODEQ, after consultation with IDEQ, shall notify IPC in writing of its approval or denial of the proposed alternative measures. If denied, ODEQ shall specify the basis for the rejection.
  - c. Within 120 days of approval, if any, of proposed alternative measures, IPC shall submit to the DEQs for approval an Alternative Measures Plan, as described below.
  
2. **ODEQ’s Determination that Alternative Measures are Required.** After the second Five-Year Report, and after any subsequent five-year report, the ODEQ, after consultation with IDEQ, may determine that Alternative Measures are required in accordance with this section II.F.4 below.
  - a. Within 60 days of the receipt of a Five-Year Report, ODEQ and IPC shall meet to discuss the report, whether alternative measures are required, and any other issues including but not limited to any additional information that may be required by ODEQ in order to make a determination.
  - b. Within 90 days of the meeting and the submission of additional information, whichever occurs later, the ODEQ, after consultation with IDEQ, shall notify IPC if Alternative Measures are required.
  - c. Within 180 days of the notification, IPC shall submit to the DEQs for approval an alternative measures plan, as described below.
  
3. **Temperature Alternative Measures Plan (“TAMP”).**
  - a. IPC shall include the following in any alternative measures plan that addresses compliance with applicable temperature criteria:
    - i. Details of the measure to be implemented, including a comparison of the proposed measure to the current SRSP. If ODEQ, after consultation with IDEQ, requires Plan B as the

Alternative Measure, the TAMP must provide details with respect to Plan B, including, at a minimum, the manner in which IPC achieves the TMDL temperature allocation and the other applicable temperature criteria.

- ii. An evaluation of whether the measure may cause or contribute to a violation of applicable water quality standards. The TAMP must include a detailed description of actions needed to prevent a violation of water quality standards.
  - iii. If the construction or implementation of the measure may require permitting or approval by any state or federal agency, a description of the process necessary and the estimated time period to acquire such permitting or approval.
  - iv. A schedule for the implementation of the measure.
- b. The DEQs shall provide an opportunity for public review and comment regarding any Alternative Measure.

#### 4. **Alternative Measures Standard.**

- a. IPC shall implement Plan B or other approved Alternative Measures if, taking into account any previously approved revisions to the SRSP, projects implemented and to be implemented under the SRSP, ODEQ, after consultation with IDEQ, determines that the SRSP does not appear reasonably likely to achieve the year 15 and 30 required thermal benefits. ODEQ, after consultation with IDEQ, may require that Plan B be submitted as the Alternative Measure if it determines that other proposed Alternative Measures, if any, are not likely to achieve the required thermal benefits or otherwise meet the TMDL temperature load allocation and the applicable temperature criteria.
- b. In determining whether to approve an Alternative Measure and TAMP, ODEQ, after consultation with IDEQ, shall consider the following:
  - i. Whether Plan B or the Alternative Measures, as presented in the TAMP, are reasonable likely to achieve the required thermal benefits or otherwise meet the TMDL temperature load allocation and the other applicable temperature criteria.
  - ii. Whether Plan B or the Alternative Measures being considered, operated alone or in combination with other Alternative Measures, after consideration of any mercury or other water quality studies undertaken and any other information ODEQ deems relevant, may cause or contribute to a violation of applicable water quality standards. As provided in this section II.F.3.a above, IPC must include in the TAMP a detailed description of any actions necessary to prevent a violation of water quality standards; and
  - iii. Other issues relevant to the implementation of Plan B or another Alternative Measure, including whether the construction or

implementation of the measure may require any permitting or approval by any state or federal agency, including FERC.

**5. Implementation of Temperature Alternative Measures Plan.**

- a. Upon ODEQ's approval of the TAMP, IPC shall implement the TAMP in accordance with its terms and schedule, including any modifications made by ODEQ as conditions of its approval.
- b. Unless and until ODEQ approves a TAMP in writing, IPC shall continue to implement the SRSP as set forth in Exhibit 7.1-1 of the Application and in accordance with the conditions of this certification to achieve the year 15 and 30 year required thermal benefits.

**III. Dissolved Oxygen ("DO")—Brownlee Reservoir TMDL Load Allocation.**

**A. Required Actions.** IPC shall take the following actions, which are further detailed in the conditions set out below, in order to comply with the Brownlee Reservoir Snake River Hells Canyon Total Maximum Daily Load Dissolved Oxygen allocation:

1. Implementation of the Riverside Operational Water-Quality Improvement Project ("ROWQIP") or any approved Alternative Measure; and
2. Attainment of the TMDL DO allocation by reducing phosphorus loads upstream of Brownlee by 9,343 kg during May through September (153 days) each year.

**B. Implementation of the ROWQIP.** Upon the issuance of a new FERC license for the Project, IPC shall continue to implement the ROWQIP as it is described in the Section 7.2.1 of the Application, which by this reference is incorporated in its entirety, and in accordance with this 401 certification in order to meet the DO load allocation for the FERC license term unless an Alternative Measure is approved in accordance with this section III.B.4 below

1. **Monitoring Plan.** Within 120 days of the issuance of a new FERC license for the Project, IPC shall submit to the DEQs for approval a monitoring plan that monitors implementation of the ROWQIP. Once approved by ODEQ, after consultation with IDEQ, IPC shall implement the monitoring plan in accordance with its terms and schedule, including any modifications made by ODEQ as conditions of its approval. The monitoring plan shall include, at a minimum, a requirement that IPC will monitor for:
  - a. **Total phosphorus** concentrations in Riverside Canal tributary inflows.
  - b. **Total suspended solids** concentration in Riverside Canal tributary inflows.
  - c. **Flow data** collected at the Boise River diversion and other tributary inflow locations.
  - d. Total phosphorus monitoring at river mile 345.

2. **Annual Reports.** At the end of each calendar year following the issuance of the new FERC license for the Project, IPC shall provide to the DEQs an Annual Report that includes the following information:
  - a. The results of monitoring accomplished in the past year in accordance with the approved monitoring plan;
  - b. Total phosphorus load reduction analysis demonstrating whether the implementation of the ROWQIP attained the DO load allocation, expressed as a total phosphorus reduction, for that year; and
  - c. Any proposed changes to the ROWQIP and any Alternative Measures proposed by IPC. As used in this section III, “Alternative Measures” are methods or approaches not included in the ROWQIP that will provide, or assist in providing, reasonable assurance that the DO load allocation described in this section III.A above will be achieved. ODEQ shall review such a proposal as provided in this section III.B.4 below. Any such proposal must include the following:
    - i. The basis or reasons why IPC considers Alternative Measures to be necessary or appropriate;
    - ii. A detailed description of the proposed Alternative Measure;
    - iii. An analysis of how the Alternative Measure will provide, or assist in providing, reasonable assurance that the DO load allocation described in this section III.A above will be attained; and
    - iv. A statement of whether the proposed Alternative Measures will cause or contribute to a violation of applicable water quality standards.
  - d. **DEQ Response to Annual Reports.** ODEQ, after consultation with IDEQ, shall respond to Annual Reports, if necessary, as follows:
    - i. Within 90 days, ODEQ shall either approve or reject proposed changes to the ROWQIP.
    - ii. ODEQ shall respond to a proposed Alternative Measure as set forth in this section III.B.4 below.
3. **Five Year Reports.** At the end of every fifth calendar year following the issuance of a new FERC license for the Project, IPC shall provide a Five-Year Report to the DEQs that includes the following:
  - a. All the required elements of the annual report for that year;
  - b. Trend analysis of total phosphorus data collected at Brownlee Reservoir inflow; and

- c. A discussion of how total phosphorus data collected at the inflow to Brownlee Reservoir compares to Snake River Hells Canyon TMDL target of 0.07 mg/L.
- 4. **Alternative Measures.** The process and the standard for determining whether Alternative Measures are required are set forth below.
  - a. **IPC Proposal.** In any Annual Report, IPC may include a request for the DEQs to consider approval of Alternative Measures.
    - i. Within 60 days of the receipt of IPC's proposal, the DEQs shall meet with IPC and discuss the proposal and any additional information that may be required by the DEQs in order to make a determination whether Alternative Measures are required.
    - ii. Within 90 days of the meeting or the submission of additional information, if requested by the DEQs, whichever occurs later, ODEQ shall notify IPC in writing of its approval or denial of the proposed alternative measures. If denied, ODEQ shall specify the basis for the rejection.
    - iii. Within 120 days of approval of the proposed alternative measures, if any, IPC shall submit to the DEQs for approval an Alternative Measures Plan, as described in this section III.B.3.c below.
  - b. **DEQs Determination that Alternative Measures are Required.** After any Annual Report, ODEQ may, after consultation with IDEQ, determine that Alternative Measures are required in accordance with this section III.B.3.d below.
    - i. Within 60 days of the receipt of an Annual Report and after consultation with IDEQ, ODEQ shall notify IPC if Alternative Measures are required.
    - ii. Within 120 days of the notification, IPC shall submit to the DEQs for approval an Alternative Measures Plan, as described in this section III.B.3.c below.
  - c. **Alternative Measures Plan.**
    - i. IPC shall include the following in any alternative measures plan:
      - 1. Details of the measure to be implemented, including a comparison of the proposed measure to the ROWQIP.
      - 2. Whether the Alternative Measure being considered, operated alone or in combination with other Alternative Measures, may cause or contribute to a violation of applicable water quality standards, and if so, the alternative measures plan must include a detailed

description of actions needed to prevent a violation of water quality standards.

3. If the construction or implementation of the Alternative Measure may require permitting or approval by any state or federal agency, a description of the process necessary and the estimated time period to acquire such permitting or approval.
  4. A schedule for the implementation of the Alternative Measure.
- ii. The DEQs shall provide an opportunity for public review and comment regarding any Alternative Measure.

**d. Alternative Measures Standard.**

- i. IPC shall implement Alternative Measures, such as a measure to directly supplement DO in Brownlee Reservoir if, taking into account any previously approved revisions to the ROWQIP and after consultation with IDEQ, ODEQ determines the ROWQIP is currently not attaining the DO load allocation described in this section III.A above or is not reasonably likely to attain that DO load allocation in the future.
- ii. In determining whether to approve an Alternative Measure and alternative measures plan, the DEQs shall consider the following:
  - i. Whether the Alternative Measure, as presented in the alternative measures plan, is reasonably likely to attain the DO load allocation described in this section III.A above and;
  - ii. Whether the Alternative Measures being considered, operated alone or in combination with other Alternative Measures, may cause or contribute to a violation of water quality standards, and if so, whether there are any actions that can be undertaken to ensure no such violation occurs; and
  - iii. Other issues relevant to the consideration of the alternative measure, including whether the construction or implementation of the measure may require any permitting or approval by any state or federal agency, including FERC.

**e. Implementation of the Alternative Measures Plan.**

- i. After consultation with IDEQ and upon ODEQ's approval of the alternative measures plan, IPC shall implement the plan in accordance with the approved plan terms and schedule, including

any modifications made to the plan by ODEQ as a condition of its approval.

- ii. Unless and until ODEQ approves an alternative measures plan, IPC shall continue to implement the ROWQIP as set forth in Section 7.2.1 of the Application and in accordance with the conditions of this certification to achieve the DO load allocation described in this section III.A above.

#### IV. DO—DO Criteria Below Hells Canyon Dam.

**A. Required Actions.** IPC shall take the following actions, which are further detailed in the conditions set out below, in order to comply with the applicable DO criteria (IDAPA 58.01.02.250.f.i; OAR 340-041-0016):

1. IPC shall install and operate the distributed aeration systems on turbine units 1 through 4 at the Brownlee Powerhouse as described in Section 7.2.2 of the Application, which by this reference is incorporated in its entirety.
2. IPC shall test each system following installation.
3. Between July 1 and December 31, IPC shall add as much additional oxygen as possible or increase DO in the outflow from the Hells Canyon Dam by an average of 1.4 mg/L, whichever is greater, until any further addition or increase would cause an exceedance of the current total dissolved gas criterion set forth in this section VI below. IPC shall calculate this 1.4 mg/L requirement as a minimum of the seven consecutive-day floating average of the calculated daily mean dissolved oxygen concentration.

**B. Monitoring Plan.** Within 90 days of the issuance of a new FERC license for the Project, IPC shall submit to the DEQs for approval a Dissolved Oxygen Water Quality Monitoring Plan. Once approved by ODEQ, after consultation with IDEQ, IPC shall implement the monitoring plan in accordance with ODEQ's approval. The Dissolved Oxygen Water Quality Monitoring Plan must, at a minimum, include the following components:

1. A description of the method IPC will use to determine whether the distributed aeration systems are achieving the required increase in DO.
2. Identification of DO monitoring locations. IPC shall monitor DO at locations that are representative of DO levels in the Snake River flowing into Brownlee Reservoir, and within Brownlee Reservoir, Oxbow Reservoir, and Hells Canyon Reservoir, and within three miles downstream of the Hells Canyon Dam.
3. Identification of downstream monitoring locations for intergravel dissolved oxygen. IPC shall monitor for intergravel DO below Hells Canyon Dam at sampling locations that include, at a minimum, two sampling locations within 10 miles downstream of the Hells Canyon Dam.
4. Proposed data collection procedures including description of equipment, methods and frequency of monitoring.

5. A project-specific *Quality Assurance Project Plan* (“QAPP”); and
6. A proposal for data analysis.

**C. Annual Reports.** Within 90 days of December 31<sup>st</sup> of each year following the issuance of the new FERC license for the Project, IPC shall provide to the DEQs an Outflow DO Annual Report that includes the following information:

1. Updates on the installation and testing of the distributed aeration systems currently scheduled for installation by mid-year 2019;
2. The results of monitoring accomplished in the year in accordance with the approved Monitoring Plan;
3. An analysis regarding whether the systems are achieving or are anticipated to achieve the required increase in DO; and
4. A discussion of how aeration affects total dissolved gas concentrations in the Snake River within and below the Hells Canyon Complex.

**D. Alternative Measures.** If, after any Annual Report and after consultation with IDEQ, ODEQ determines that the distributed aeration systems are not achieving or will not likely achieve an increase in DO in the outflow of Hells Canyon Dam of at least an average of 1.4 mg/L during the applicable period, then ODEQ shall notify IPC that Alternative Measures are required. Within 120 days of the notification, IPC shall submit to the DEQs for approval an alternative measures plan.

a. IPC shall include the following in any alternative measures plan:

1. Details of the measure to be implemented, including a comparison of the proposed alternative measure to the proposed distributed aeration systems;
2. An evaluation of whether the measure may cause or contribute to a violation of applicable water quality standards, and if so, whether there are any actions that can be undertaken to ensure no such violation occurs;
3. If the construction or implementation of the measure may require permitting or approval by any state or federal agency, a description of the process necessary and the estimated time period to acquire such permitting or approval; and
4. A schedule for the implementation of the measure.

b. The DEQs shall provide an opportunity for public review and comment regarding any alternative measure plan, prior to approving the plan.

- c. Upon ODEQ's approval of an alternative measures plan, IPC shall implement the plan in accordance with the approved plan's terms and schedule, including any modifications made to the plan by ODEQ as a condition of approval.
- d. Unless and until ODEQ approves an alternative measures plan, IPC shall continue to operate the proposed distributed aeration systems as set forth in this section IV.A.3 to achieve the required increase in DO in the outflow from Hells Canyon Dam.

**V. Oxbow Bypass Destratification**

- A. Required Actions.** IPC shall take the following actions, which are further detailed in the conditions set out below, to comply with applicable DO criteria (IDAPA 58.01.02.250.f.i; OAR 340-041-0016).
- B. Operating Plan.** Within one year of the issuance of the new FERC license for the Project, IPC shall submit to the DEQs and FERC for approval the final Operating Plan for a destratification system. The system shall address thermal stratification in the deep pool of the Oxbow Bypass and the resulting anoxic conditions by introducing sufficient mixing (using diffused air bubbles) to prevent thermal stratification and development of anoxic conditions in the deep pool. The Operating Plan shall include:
  - 1. Final design plans;
  - 2. Parameters and requirements for operation and expected performance;
  - 3. A monitoring plan to determine whether the system is meeting performance goals;
  - 4. Adaptive management protocols; and
  - 5. A reporting schedule.
- C. Installation and Operation of the System.** Within 6 months of ODEQ's and FERC's approval of the Operating Plan, IPC shall install the system in accordance with the approved design and thereafter operate the system for the FERC license term in accordance with the approved Operating Plan.

**VI. Total Dissolved Gas ("TDG").**

- A. Required Actions.** IPC shall take the following actions, which are further detailed in the conditions set out below, to comply with applicable TDG criteria (IDAPA 58.01.250.01.b and 300; OAR 340-041-0031(2)) and the TMDL load allocations:
  - 1. IPC shall meet and maintain a TDG level of less than 110% of saturation at the sampling locations defined in this section VI.B.2 below, except when flows exceed the ten-year, seven-day average flood.
  - 2. IPC shall install and implement flow deflectors as described in Section 7.3.1.2 - .4 of the Application, which by this reference are incorporated in its entirety.

3. IPC shall continue preferential Brownlee dam upper gate spill until the flow deflectors are installed and operating.

**B. Operating Plan.** Within 90 days of the issuance of the new FERC license for the Project, IPC shall submit to the DEQs an Operating Plan that includes:

1. A proposed schedule for the submittal for approval of the design plans to FERC, and installation of flow deflectors at the Brownlee Dam spillway, the Oxbow Dam spillway and the Hells Canyon sluiceway;
2. A monitoring plan to determine whether the system is meeting the applicable criteria and load allocation. The monitoring plan shall include, at a minimum, monitoring of TDG concentrations during spill events, specific locations to define point of sampling location below each dam for determining compliance, methodology and equipment for monitoring;
3. Adaptive management measures as described in Section 7.3.2 of the Application, which is incorporated here in its entirety by this reference; and
4. A reporting schedule.

**C. Installation and Operation of the System.** In accordance with the schedule in the approved Operating Plan, IPC shall install the deflectors; and IPC shall monitor in accordance with the approved Operating Plan to determine if TDG criteria and the load allocations are met at sampling locations defined in the monitoring plan.

**D. Alternative Measures.** If ODEQ notifies IPC that monitoring indicates that TDG criteria and allocations are not being met, then within 120 days of such notification IPC shall submit to the ODEQ proposed alternative measures and an alternative measures plan to address compliance with applicable criteria and allocations. IPC shall implement the plan in accordance with the approved plan terms and schedule, including any modifications made to the plan by ODEQ as a condition of its approval. Unless and until ODEQ approves an alternative measures plan, IPC shall continue to meet conditions set forth in this section VI.A above.

## **VII. Harmful Algal Blooms (“HAB”).**

**A. Required Actions:** IPC shall take the following actions, which are further detailed in the conditions set out below, to comply with the applicable criteria (OAR 340-041-0007(10), (12) and (13); IDAPA 58.01.02.200.05 and .06).

1. Within 90 days of issuance of the new FERC license, IPC must submit to the DEQs a HAB monitoring plan. At minimum, the HAB monitoring plan must include:
  - a. Identification of times and locations of high recreational activity.
  - b. A minimum of weekly visual monitoring during periods of high recreation.
  - c. Additional quantitative (e.g. cell counts, species identification, toxin concentration, or other as deemed needed by ODEQ or Oregon Health Authority (“OHA”) monitoring if visual monitoring indicates potential HAB.
  - d. Submission of visual and quantitative monitoring results to the OHA.

- e. Advisory postings at the sampling locations following issuance of an advisory by OHA.
  - f. Additional visual and quantitative monitoring as needed to provide OHA sufficient data to lift the advisory.
  - g. Monitoring shall follow OHA guidelines (Oregon Health Authority P. H., 2015). ODEQ will work with OHA on review of the monitoring plan.
2. After consultation with IDEQ and once approved by ODEQ, IPC shall implement the HAB monitoring plan in accordance with ODEQ's approval.
- B. Monitoring Plans.** IPC shall review and update the monitoring plans every five years to reflect new versions of OHA guidance documents. Updated monitoring plans shall be submitted to the DEQs for review and approval.
- C. Alternative Measures.** If ODEQ notifies IPC that visual and quantitative monitoring indicates that occurrence of HAB are increasing, then within 120 days of such notification IPC shall submit to the ODEQ proposed alternative measures and an alternative measures plan to address compliance with applicable criteria. IPC shall implement the plan in accordance with the approved plan terms and schedule, including any modifications made to the plan by ODEQ as a condition of its approval.

## VIII. Mercury

- A. Required Actions:** IPC shall take the following actions, which are further detailed in the conditions set out below, to comply with the applicable criteria (OAR 340-041-0007(10) and OAR 340-041-0033(1), (2) and (3); IDAPA 58.01.02.210.01):
- 1. IPC shall continue to assist in funding the U.S. Geological Survey ("USGS") mercury and methylmercury study as described in Section 6.6.2.2.1 of the Application, which includes the development of a predictive model.
  - 2. IPC shall update the DEQs annually on the progress of the mercury and methyl mercury studies with USGS.
  - 3. If USGS fails to complete the study, then IPC shall complete the study and develop the predictive model.
- B. Methyl Mercury Reports.** At the end of each calendar year following the issuance of the new FERC license for the Project, IPC shall provide an annual report on the status of and any results from the mercury and methyl mercury study released by USGS and ambient water quality monitoring. Within 90 days following completion of the Hells Canyon Complex predictive model, whether by USGS or IPC, IPC shall provide the DEQs with a report identifying the key processes that influence methyl mercury production in the Hells Canyon Complex.
- C. Methyl Mercury Plan.** Within 180 days following completion of the Hells Canyon Complex predictive model, whether by USGS or IPC, IPC shall propose to the DEQs a methyl mercury management plan to address the Hells Canyon Complex's role in methyl mercury production. After consultation with IDEQ and once approved by ODEQ, IPC shall implement the methyl mercury management plan in accordance with ODEQ's approval.

## IX. Biological Criteria; Statewide Narrative Criteria; Protection of Designated Beneficial Uses; Antidegradation; Compliance with Other Appropriate Requirements of State Law

- A. Required Actions:** IPC shall take the following actions, which are further detailed in the conditions set out below, in order to ensure that waters of the State are of sufficient quality to support aquatic species without detrimental changes in the resident biological communities as

required by OAR 340-041-0011; to maintain overall water quality at the highest possible levels and deleterious factors to lowest possible levels, and prevent deleterious conditions to fish and other aquatic life as required by OAR 340-041-0007(1), (7), respectively; to protect designated beneficial uses as required by OAR 340-041-0004 and OAR 340-041-0121; and to comply with other appropriate requirements of state law pursuant to ORS 468B and 33 U.S.C. 1341(d):

1. Develop and implement a macroinvertebrate monitoring plan;
2. Implement ramping rate restrictions;
3. Implement minimum flows;
4. Develop and implement a Passage and Natural Production Implementation Plan;
5. Implement habitat evaluations and survival studies;
6. Identify and develop brood stock;
7. Implement a pathogen risk assessment;
8. Design, construct, operate, and modify upstream and downstream passage facilities;
9. Monitor success of natural production in Pine Creek;
10. Ensure that measures necessary for implementation of the Passage Plan are integrated with other native salmonid mitigation measures required by FERC or other federal agencies;
11. Expand passage and natural production of native migratory species into other Oregon tributaries as informed by evaluations, studies, pathogen risk assessment, and monitoring.

**B. Macroinvertebrate Monitoring Plan.** Within 90 days of issuance of a new FERC license for the Project, IPC shall submit to ODEQ for approval a macroinvertebrate and periphyton monitoring plan.

1. **Components:** At a minimum, IPC shall include the following components in the monitoring plan:
  - a. A description of an appropriate sampling technique for macroinvertebrate and periphyton monitoring below Hells Canyon Dam, which shall include standard bioassessment metrics including densities, abundance, richness and tolerance;
  - b. Identification of monitoring locations below Hells Canyon Dam, which shall, at a minimum, include one sampling location within 10 miles downstream of the Hells Canyon Dam and one sampling location within 30 miles downstream of the Hells Canyon Dam; and
  - c. Identification of the frequency of macroinvertebrate and periphyton monitoring below Hells Canyon Dam, which shall include proposed sampling during all seasons.
2. **Implementation of Macroinvertebrate Monitoring Plan.** Once approved by ODEQ, IPC shall implement the macroinvertebrate monitoring plan in accordance with ODEQ's approval.
3. **Annual Reports.** At the end of each calendar year following the issuance of the new FERC license for the Project, IPC shall provide to the ODEQ an annual report that includes the results of macroinvertebrate and periphyton monitoring completed in the past year in accordance with the approved monitoring plan.
4. **Periodic Meetings.** Following each fifth year of monitoring, IPC shall meet with ODEQ and discuss, based on comparison of the standard bioassessment metrics to the monitoring results, whether the macroinvertebrate and periphyton communities continue to be impaired.

5. **Alternative Measures.** If ODEQ determines that impacts to water quality are occurring, IPC shall develop an alternative measures plan that must include the following:
    - a. The basis or reasons why IPC considers alternative measures to be necessary or appropriate to address impairment;
    - b. A detailed description of proposed alternative measures;
    - c. An analysis of how alternative measures will provide, or assist in providing, reasonable assurance that the macroinvertebrate and periphyton communities or other designated beneficial uses will not be impaired by Project operations; and
    - d. A statement of whether the proposed alternative measures will cause or contribute to a violation of applicable water quality standards.
  6. **Implementation of Alternative Measures.** Upon ODEQ's approval of the alternative measures plan, IPC shall implement the plan in accordance with the approved plan's terms and schedule, including any modifications made to the plan by ODEQ as a condition of its approval.
  7. **Public Review and Comment.** ODEQ shall provide an opportunity for public review and comment regarding any alternative measure plan prior to its approval.
- C. Ramping Rate Restrictions; Minimum Flows.** Except when complying with any flood control mandate(s) and subject to this section IX.C.3, IPC shall implement the following actions.
1. **Ramping Rate Restrictions Implementation.** Within 180 days of issuance of a new FERC license for the Project, IPC shall:
    - a. Operate such that the maximum variation in river stage shall not exceed 4 inches per hour as measured at the Snake River at Johnson Bar gaging station 132904060 (RM 230) during the March 15 to June 15 fall Chinook rearing period;
    - b. Measure variation in river stage at the Snake River at Hells Canyon Dam gaging station 13290450 (RM 247) or at any other gaging station located within five miles downstream of Hells Canyon dam; and
    - c. Report these measurements to ODEQ on a monthly and annual basis.
  2. **Minimum Flows Implementation.** Within 180 days of issuance of a new FERC license for the Project, IPC shall maintain stable flows during fall Chinook spawning (actual dates to be determined in consultation with ODEQ and ODFW prior to the spawning season based on runoff forecasts) of between 8,500 and 13,500 cfs to ensure that fall Chinook salmon redds are created at elevations that are protected during the winter peak load period.
  3. **Alternative Measures.** If FERC should require in its final license any additional, or modifications to the above-described, ramping rate restrictions or minimum flows requirements, then, within 60 days of issuance of a new FERC license for the Project, IPC shall notify ODEQ and prepare a report that evaluates the effect of any such operational changes on the resident biological communities and describes why IPC considers the FERC-required additional or modified measures provide, or assist in providing, reasonable assurance of compliance with state water quality standards. Within 90 days of receipt of this report and any additional information requested by ODEQ, whichever date is later, ODEQ may modify the conditions in this section IX.C to align with FERC requirements or as necessary to prevent a violation of applicable water quality standards, protect designated beneficial uses, or to comply with other appropriate requirements of state law.
- D. Passage and Natural Production Implementation Plan.** Within 1 year of issuance of a new license for the Project, IPC shall develop a Passage and Natural Production

Implementation Plan (hereinafter referred to as the “Passage Plan”) that provides a phased-approach for safe, timely, and effective passage to reestablish self-sustaining, harvestable populations of spring Chinook and steelhead into Pine Creek within 13 years of license issuance, and, subject to this section IX.M, native migratory fish species into other Oregon tributaries above Hells Canyon dam, to be determined in consultation with ODFW, during the remaining term of the new license. The Passage Plan shall detail goals, objectives, tasks, timelines, monitoring, evaluation, and decision processes for implementing, adjusting, and expanding passage and natural production of native migratory species in Oregon tributaries above Hells Canyon dam.

1. **Components.** IPC shall include in the Passage Plan the following components, which are further detailed in the conditions set forth below:
  - a. Providing effective upstream and downstream passage of spring Chinook salmon and steelhead into Pine Creek during all months of the year when fish are migrating, as determined by ODFW;
  - b. Providing effective upstream and downstream passage of native migratory species to and from Oregon tributaries above Hells Canyon dam during all months of the year when fish are migrating, as determined by ODFW;
  - c. Evaluating habitat conditions to assess production potential in Pine Creek and other Oregon tributaries;
  - d. Assessing and monitoring pathogen risks associated with upstream and downstream passage of native migratory fish;
  - e. Identifying stocks and sources of adult and juvenile fish to be used;
  - f. Conducting adult and juvenile migration and survival studies, adult spawning surveys, and juvenile production assessments in Oregon tributaries and Hells Canyon reservoir;
  - g. Developing a contingency plan for smolt acclimation if surplus adult fish do not migrate to, or spawn in, target tributaries;
  - h. Developing performance standards at the population, life-stage, and programmatic levels, and monitoring performance to determine effectiveness of efforts and progress towards providing safe, timely, and effective passage to reestablish self-sustaining, harvestable populations;
  - i. Monitoring natural production of anadromous fish upstream of Hells Canyon Dam including adult returns to Hells Canyon Dam trap and juvenile production at collection facilities upstream of Hells Canyon Dam; and
  - j. Implementing modifications and management changes needed to achieve performance standards, resulting in anadromous fish passage and natural production in Oregon tributaries above Hells Canyon dam.
2. **Integration with Other Federal Requirements.** IPC shall integrate the Passage Plan into any other passage plan required by FERC or other federal agencies pursuant to Federal Power Act (FPA) Section 18. Further, if FERC or the federal agencies with FPA Section 18 authority have imposed any requirement that interferes with or impairs IPC’s ability to implement the Passage Plan or to otherwise comply with a specific condition of this section IX, IPC shall meet with ODEQ and propose modifications to its Passage Plan to avoid identified conflict, if any, and to otherwise integrate all requirements of the license in a manner that sufficiently complies with state water-quality standards and other appropriate requirements of state law. Subject to ODEQ’s approval, IPC shall implement a modified plan. Unless and until ODEQ approves any modified plan, IPC shall continue to implement the Passage Plan in accordance with this section IX. ODEQ may modify the conditions in this section IX to align with FERC requirements, or

as necessary to prevent a violation of applicable water quality standards, protect designated beneficial uses, or comply with other appropriate requirements of state law.

3. **Annual Work Plans and Progress Assessments.** IPC shall prepare and submit annual work plans describing study efforts and results to date, proposed actions to be implemented, proposed monitoring and evaluation studies, and proposed management, monitoring, and evaluation studies for the coming year consistent with the Passage Plan. During implementation of the Passage Plan, IPC shall meet annually with ODEQ and ODFW to review progress toward achieving passage and natural production goals and objectives of the Passage Plan. If IPC, ODEQ, or ODFW identifies any biological, structural, or operational factors as limiting the success of the Passage Plan, then IPC shall implement changes directed or agreed to by ODEQ, in consultation with ODFW, to improve passage performance.
4. **Reporting Requirements.** IPC shall provide a report of its research and findings within 6 months of completing each assessment, evaluation, or study required in this section IX.D through IX.M. In addition, IPC shall submit the following reports:
  - a. **Fish Passage Evaluation Completion Reports.** Within 14 years of the issuance of the new license for the Project, and within 1 year of completion of evaluations in each Oregon tributary into which fish passage is expanded, IPC shall provide a Fish Passage Evaluation Completion Report that includes the following information:
    - i. Summary of all Habitat Evaluations and Migration and Survival Studies completed during the first 13 years of the new FERC license implementation.
    - ii. Summary of all Brood Stock Identification and Development efforts and Pathogen Risk Assessments completed to date, including an analysis of the results.
    - iii. Summary of data analysis related to all aforementioned evaluations, studies and assessments and the progress toward achieving passage and natural production goals and objectives of the Passage Plan.
    - iv. Summary of the performance standards and results developed and complied during monitoring of anadromous fish production.
    - v. A summary and evaluation of any biological, structural or operational factors limiting success of the Passage Plan.
    - vi. Identification of any data gaps, program inefficiencies or challenges.
    - vii. Any proposed research and evaluation efforts needed to address uncertainties or reduce risk associated with fish passage.
    - viii. Summary of measures implemented in the Tributary Habitat Enhancement Program as described in the FEIS FERC Staff Alternative or any other similar required measure within the Pine Creek basin or other Oregon tributaries that benefit anadromous fish spawning and rearing habitat or other changes to anadromous fish habitat observed during Passage Plan implementation.

5. **Expansion.** Within 14 years of issuance of a new license for the Project, IPC shall expand passage and natural production of native migratory species into other Oregon tributaries above Hells Canyon dam unless ODEQ, in consultation with ODFW, determines on the basis of an evaluation of studies conducted in Pine Creek that, among other considerations, adult returns, local adaptation, and smolt production numbers establish that either (a) additional time is necessary for study, evaluation, and implementation of the Passage Plan, whether modified in whole or in part, or (b) termination is appropriate pursuant to this section IX.M. If ODEQ notifies IPC that additional time or modification to the Passage Plan is necessary, IPC shall modify the Passage Plan to reflect any modifications specified in that notice and submit it to ODEQ within 180 days. Upon ODEQ's approval of a revised Passage Plan, if any, IPC shall implement that revised plan in accordance with approved terms and schedules. If IPC fails to incorporate modifications to the Passage Plan, ODEQ may modify the plan for purposes of its approval.
- E. Brood Stock Identification and Development.** Within 6 months of issuance of a new license for the Project, IPC shall evaluate potential stocks of anadromous and resident fish populations and make recommendations of options for each species' broodstock with the greatest potential for successful establishment in Pine Creek for ODEQ's approval, in consultation with ODFW. Within 14 years of license issuance, IPC shall evaluate potential stocks of anadromous and resident fish populations and make recommendations of options for each species' broodstock with the greatest potential for successful establishment in other Oregon tributaries upstream of Hells Canyon dam for ODEQ's approval, in consultation with ODFW. IPC shall evaluate stock performance and present results to ODEQ and ODFW at least every five years throughout implementation of the Passage Plan unless otherwise agreed to by ODEQ, in consultation with ODFW.
- F. Pathogen Risk Assessment.** Within 2 years of issuance of a new license for the Project, IPC shall implement a pathogen risk assessment developed in consultation with ODEQ and ODFW Fish Pathology staff that surveys and monitors upstream and downstream Snake River fish populations, including donor hatchery stock, native resident and anadromous fish stocks, to evaluate the risk of transmitting fish pathogens above the Project associated with fish passage and natural production. Following the initial assessment of pathogen risk, IPC shall perform follow-up pathogen surveys at five-year increments throughout implementation of the Passage Plan unless otherwise agreed to by ODEQ, in consultation with ODFW.
- G. Habitat Evaluations.** Within 2 years of issuance of a new license for the Project, IPC shall design and implement, subject to approval by ODEQ, in consultation with ODFW, habitat evaluations to determine spring Chinook and summer steelhead production potential within Pine Creek. IPC shall develop and conduct habitat evaluations in Pine Creek that are tied to fish survival studies for the development of life-cycle models using the Columbia River Habitat Monitoring Program (CHaMP) methodology unless another methodology is approved by ODEQ, in consultation with ODFW. Within 5 years after initiation of studies in Pine Creek, IPC shall initiate such evaluations for production potential within Eagle Creek and the Powder River for steelhead and spring Chinook salmon and within Daly Creek and Goose Creek for steelhead. IPC shall conclude and provide a report on all habitat evaluations to-date within 14 years of their initiation.
- H. Migration and Survival Studies.** IPC shall conduct migration and survival studies on adult and juvenile spring Chinook and steelhead in Pine Creek, in other Oregon tributaries, and in Hells Canyon Reservoir, as specifically described below.
  1. **Pine Creek and other Oregon Tributaries.** Within 2 years of issuance of a new license for the Project, IPC shall design and implement, subject to approval by ODEQ, in consultation with ODFW, migration and survival studies for adult and juvenile steelhead and spring Chinook within Pine Creek. Within 14 years of

issuance of a new license for the Project, IPC shall implement similar studies in other Oregon tributaries, subject to approval by ODEQ, in consultation with ODFW.

- a. **Adult evaluations.** Adult steelhead and spring Chinook salmon shall be released by IPC into Pine Creek, or other Oregon tributaries, above any juvenile collection facilities and allowed to migrate volitionally to suitable spawning areas. IPC shall perform adult migration studies that evaluate the migration and holding behavior of adult spring Chinook salmon and steelhead transported to areas upstream of Hells Canyon Dam for natural spawning; and determine pre-spawn survival, spawning activity and success. IPC shall, for both steelhead and spring Chinook, implant telemetry tags into a minimum of 30 each but as many as 100 adults and track their movements. IPC shall use remote data logging receivers to track fish into tributaries within Pine Creek, and other Oregon tributaries, and mobile ground tracking to locate potential spawning areas. IPC shall, in consultation and cooperation with ODFW staff, conduct annual redd counts for summer steelhead and spring Chinook in identified potential spawning areas to monitor redd formation, pre-spawn mortality, spawning distribution, and spawning success. IPC shall use data from these efforts to assess the following:
    - i. Migration timing, behavior and survival of adults from different release strategies and locations above Hells Canyon dam to holding or spawning locations, or both;
    - ii. Temporal and spatial distribution of spawning locations;
    - iii. Evaluation of handling and transport techniques; and
    - iv. Estimate adult recruits per spawner.
  - b. **Juvenile evaluations.** Beginning 1 year following adult releases into each Oregon tributary, IPC shall collect juvenile spring Chinook and steelhead produced from successful adult spawning in Pine Creek and each Oregon tributary at a juvenile collection facility pursuant to this section IX.K. IPC shall tag all anadromous outmigrants collected at juvenile collection facilities with Passive Integrated Transponders (PIT) to identify them as originating above Hells Canyon dam. IPC shall employ methods to collect spring Chinook and steelhead juveniles and early life history data adequate to assess the following:
    - i. Determine in-stream egg to smolt survival;
    - ii. Estimate natural smolt production;
    - iii. Assess naturally produced smolt migration patterns and timing;
    - iv. Evaluate effectiveness of transport and release strategies below Hells Canyon dam; and
    - v. Estimate the smolt to adult return rate.
2. **Hells Canyon Reservoir.** Within the 4 years of issuance of a new license for the Project, IPC shall design and implement, subject to approval by ODEQ, in consultation with ODFW, juvenile migration and survival studies for spring Chinook and steelhead through Hells Canyon Reservoir. In addition, IPC shall monitor behavior and fate of adult spring Chinook and steelhead in Hells Canyon Reservoir in the event that these fish are released into Hells Canyon Reservoir or fall back into Hells Canyon Reservoir following release into Pine Creek. IPC shall perform these adult evaluations in Hells Canyon Reservoir concurrently with adult evaluations in Pine Creek.

- a. **Juvenile evaluations.** IPC shall perform studies to determine migration behavior and survival of spring Chinook and steelhead juveniles to potential points of collection in the Hells Canyon Reservoir for subsequent transportation or bypass around Hells Canyon Dam. The following evaluations shall be completed within 14 years of license issuance:
  - i. Determine survival, frequency of injury, and transit time for fry, pre-smolts, and smolts traveling through Hells Canyon Reservoir;
  - ii. Determine route selection and reservoir loss during downstream migration periods at the Hells Canyon powerhouse under low, medium, and high powerhouse flows, and during periods when water is spilled over the dam; and
  - iii. Study smolt migrant behavior in the forebay for type and siting of juvenile passage facilities.

**I. Implementation of Passage.** Upon ODEQ's approval of the Passage Plan, IPC shall implement that plan in accordance with approved terms and schedules. If IPC fails to incorporate modifications to that plan as requested by ODEQ, ODEQ may modify the plan for purposes of its approval.

1. **Adult Outplants.** IPC shall release adult hatchery fish trapped at Hells Canyon dam into Oregon tributaries upstream of Hells Canyon dam. IPC shall release other life stages, if directed by ODEQ, to ensure success of the Passage Plan. Following these releases, IPC shall evaluate the temporal and spatial distribution of spawning locations, adult movement, handling techniques, outplant locations, and pre-spawning mortality. IPC shall release adult hatchery steelhead and spring Chinook annually in amounts ODEQ determines, in consultation with ODFW, is appropriate, and IPC shall include these amounts in the Passage Plan and annual work plans. IPC shall continue releases of hatchery adult fish into Pine Creek at some level until ODEQ, in consultation with ODFW, determines that sufficient numbers of naturally produced adults return to the Hells Canyon trap.
2. **Contingency Plan.** Upon request of ODEQ, IPC shall develop and implement a contingency plan that increases the availability of suitable adults if the availability of adult returns to Hells Canyon dam is identified by ODEQ, in consultation with ODFW, as affecting studies or limiting passage or natural production success.
3. **Juvenile Production.** Beginning no later than 3 years after license issuance, IPC shall annually estimate juvenile smolt production for both steelhead and spring Chinook salmon in Pine Creek. Smolt production, defined as the number of juveniles estimated to reach the mouth of Pine Creek, shall be estimated primarily using a collection facility in Pine Creek as provided for in this section IX.K. IPC shall tag all anadromous out migrants collected with Passive Integrated Transponders (PIT) to identify them as originating from Pine Creek and determine migration survival of both juveniles and returning adults. The adipose fin will not be clipped on these fish to provide them the same harvest protection as wild fish if encountered in downstream fisheries.

**J. Integration with Other Native Salmonid Mitigation Measures.** IPC shall be responsible for ensuring that passage and natural production measures for anadromous fish are integrated with other native salmonid mitigation measures required by FERC or other federal agencies pursuant to FPA Section 18.

1. **Bull Trout Passage.** IPC shall ensure that the collection facilities will be designed, constructed, and operated to provide safe, timely, and effective passage for bull trout and anadromous salmonids. Any hydraulic and biological evaluations of collection facilities must consider bull trout and other resident salmonids as well as anadromous fish.

2. **Tributary Habitat Enhancement Program.** IPC shall carry out the Tributary Habitat Enhancement Program described in the FEIS FERC Staff Alternative, or any other similar required measure within the Pine Creek basin or other Oregon tributaries, in a manner that enhances resident trout habitat and also benefits anadromous fish spawning and rearing habitat. IPC shall ensure that any improvements that focus on enhancing bull trout habitat shall not negatively impact anadromous fish or their habitat.
3. **Marine-Derived Nutrient Supplementation.** IPC shall implement marine-derived nutrient supplementation in Oregon tributaries above Hells Canyon dam in close coordination with, and approval of, ODFW Fish Pathology staff.

**K. Passage Facilities.** IPC shall operate collection facilities in accordance with the Passage Plan, and as specifically described below.

1. **Pine Creek.** IPC shall consult with ODFW on the placement and operation of any juvenile collection facility.
  - a. **Initial Juvenile Collection.** Within 3 years of issuance of a new license for the Project, IPC shall perform juvenile collection and PIT tagging of outmigrants using either:
    - i. a permanent weir and trap in Pine Creek that is capable of collecting 90% of outmigrating smolts under typical conditions of low to medium flow years and that shall operate when juvenile spring Chinook and summer steelhead are migrating out of Pine Creek unless otherwise agreed to by ODEQ, in consultation with ODFW, such as, for example, after notification of an emergency or anticipated maintenance, or
    - ii. with experimental screw traps in Pine Creek placed downstream of known spawning and rearing locations (to ensure sub-basinwide juvenile production estimates), as determined by ODFW, in consultation with ODEQ and IPC, or
    - iii. by installing and using another acceptable method developed in consultation with, and approved by, ODEQ, in consultation with ODFW
  - b. **Permanent Collection Facility.** Within 14 years of issuance of a new license for the Project, IPC shall install either:
    - i. a downstream collection facility described in this section IX.K.3, or
    - ii. a collection facility at the mouth of Pine Creek that is capable of collecting 90% of outmigrating smolts under typical conditions of low to medium flow years and that shall operate when juvenile spring Chinook and summer steelhead are migrating out of Pine Creek unless otherwise agreed to by ODEQ, in consultation with ODFW, such as, for example, after notification of an emergency or anticipated maintenance. Once constructed and operational, the collection facility shall serve as the collection point for juveniles outmigrating from the Pine Creek Basin.
  - c. **Collection Efficiency and Juvenile Production Estimates.** Using PIT tags and mark-recapture techniques, IPC shall, for the efficient enumeration of out migrant fish, determine the capture efficiency of any installed collection facility. IPC shall estimate juvenile production from

the number of fish collected at the collection facility adjusted for trap efficiency.

2. **Hells Canyon Trap.**

- a. **Design and Construction of a Modified Hells Canyon Trap.** Within 1 year of issuance of a new license for the Project, IPC shall begin design and construction of modifications to the Hells Canyon trap to accommodate collection and transport of bull trout, redband trout, and anadromous salmonids as small as 250 mm. Target species shall include spring and fall Chinook salmon, steelhead, Pacific Lamprey, bull trout and redband trout. IPC shall design these trap modifications to allow on-site sorting, handling, enumeration, and holding of multiple species of resident and anadromous fish, as well as providing for a safe and efficient means of returning wild fish to the river after sorting, scanning of fish for marks or tags, and capture and transport of resident salmonids and other species to Oxbow hatchery and upstream. The modification of the Hells Canyon trap must also include the construction of holding facilities at the trap, a covered fish sampling area and research area.
- b. **Operation.** IPC shall continue to operate the existing Hells Canyon trap prior to completing the modifications unless otherwise agreed to by ODEQ, in consultation with ODFW, such as, for example, after notification of an emergency or anticipated maintenance. IPC shall operate the modified Hells Canyon Trap from October 1 through June 30 each year and over a range of flows between 5,000 cfs and 50,000 cfs unless otherwise agreed to by ODEQ, in consultation with ODFW, for the purpose of collecting and enumerating upstream migrating anadromous and resident salmonids. IPC shall enumerate adult escapement of fish produced in Pine Creek, and other Oregon tributaries, if applicable, at the Hells Canyon Trap. IPC shall develop, in consultation with ODEQ and ODFW, a seasonal trapping plan to include anticipated operation period, sizes and species of fish to transfer, projected use including broodstock or harvest, and location of release.

3. **Downstream Passage and Collection Facility at Hells Canyon Dam.** Within 20 years of license issuance and subject to this section IX.M, IPC shall develop, construct, operate, and maintain a downstream fish passage and collection facility at Hells Canyon dam. IPC shall design and construct this facility to be operational over a range of flows and to operate year-round unless otherwise agreed to by ODEQ, such as, for example, after notification of an emergency or anticipated maintenance. IPC shall conduct the following studies to inform passage improvement processes related to this collection facility:

- a. Determine survival of smolts passing over the Hells Canyon spillway.
- b. Estimate the smolt injury/mortality rates for smolts passing through the turbines at Hells Canyon Dam.

4. **Pathogen Risk Procedures.** IPC shall follow pathogen procedures developed by ODFW Fish Pathology staff for trap and haul and volitional passage programs to ensure fish health during implementation of the Passage Plan. IPC shall adhere to surveillance protocols developed by ODFW Fish Pathology staff to minimize fish pathogen exposure(s).

5. **Design and Maintenance of Collection Facilities.** IPC shall consult with ODEQ and ODFW in design development of any fishway, trap, and weir, and provide opportunity for the ODEQ and ODFW to review and comment on various stages of these designs. Immediately upon completion of the construction or modification of

fishways, traps, and weirs, IPC shall, in consultation with ODEQ and ODFW, prepare and implement a written post-construction Evaluation Plan. The Evaluation Plan shall include hydraulic and biological evaluations and performance standards to ensure proper design, operation, and performance of the facilities. IPC, in consultation with ODFW, shall also develop fishway, trap, and weir operation and maintenance plans describing anticipated operations, maintenance, schedules, inspections, and contingencies to ensure all fishways, traps, and weirs are maintained in proper working order. IPC shall conduct regular, or emergency, maintenance to ensure effective operation prior to and during the applicable migratory periods.

6. **Potential Modification.** Once constructed, IPC shall modify the collection facilities and associated operations to improve performance for trapping and holding upstream and downstream migrating bull trout, steelhead, or Chinook salmon, if directed in writing by ODEQ. In the event that the collection efficiency of a facility is determined by ODEQ, in consultation with ODFW, to be adversely affecting the success of the passage and natural production effort, IPC shall implement the following process:
  - a. Convene a meeting with ODEQ and ODFW regional staff to discuss information and analyses from testing and determine the direction or need for further monitoring to identify collection facility performance problems.
  - b. Determine what factors are limiting the performance of the collection facilities and determine what changes in operation or structural modification can be implemented to improve collection efficiencies.
  - c. If factors limiting the efficiency of the collection facilities cannot be mitigated, then determine and implement an alternative fish passage approach, subject to approval of ODEQ in consultation with ODFW.

**L. Monitoring success of anadromous fish natural production.** IPC shall monitor success of natural production of anadromous fish in Oregon tributaries upstream of Hells Canyon Dam for the term of the license, subject to this section IX.M, IPC shall monitor adult escapement back to the Hells Canyon trap, enumerate juvenile production at the collection facilities in Pine Creek and other Oregon tributaries, and monitor handling, holding, transport of adult and juvenile spring Chinook and steelhead, and other biological, physical, and mechanical factors that affect fish viability. In consultation with ODEQ and ODFW, IPC shall develop and monitor performance standards to determine effectiveness of efforts and progress toward reaching goals and objectives of the Passage Plan. Performance standards shall be developed and monitored at the population, life-stage, and programmatic levels, and included in the Passage Plan. IPC shall be responsible for ensuring performance standards are met. If ODEQ, in consultation with ODFW, determines that performance standards are not being met, IPC shall implement requested modifications to improve performance. ODEQ reserves the right to modify performance standards as information is collected and assessed, and any modifications to performance standards must be approved by ODEQ, in consultation with ODFW.

**M. Alternative Measures.** If ODEQ, in consultation with ODFW, determines, based upon, among other considerations, the results of evaluations and studies and the pathogen risk assessment that there exists factors outside the reasonable control of IPC that prevent the establishment of a successful passage and natural production in Pine Creek, or in other Oregon tributaries above Hells Canyon dam, ODEQ may determine that either terminating the Passage Plan, in whole or in part, or modifying conditions in this section IX to allow additional time to assess and identify appropriate modifications to the Passage Plan is appropriate. Within 1 year of any termination notification, IPC shall submit to ODEQ for approval an alternative measures plan that demonstrates compliance with state water-quality standards and other appropriate requirements of state law. This alternative measures plan must include either a proposal that provides for passage

and natural production of native migratory fish into Oregon tributaries above Hells Canyon dam or a proposal that provides a net benefit to native migratory fish absent provision of passage, or both.

1. **Alternative Measures Plan.** IPC shall include the following in any alternative measures plan allowed by this section IX.M:
  - a. The basis or reasons why IPC considers an alternative measures plan to be necessary or appropriate;
  - b. A detailed description of the proposed alternative measures plan;
  - c. An analysis of how the alternative measures plan will provide, or assist in providing, reasonable assurance that state water-quality standards will be attained; and
  - d. A statement of whether the proposed alternative measures plan will cause or contribute to a violation of applicable water quality standards and comply with other appropriate requirements of state law.
2. **Implementation.** Upon ODEQ's approval of the alternative measures plan, IPC shall implement the plan in accordance with the approved plan's terms and schedule, including any modifications made to the plan by ODEQ as a condition of its approval. Unless and until ODEQ approves an alternative measures plan in writing, IPC shall continue to implement the Passage Plan in accordance with the conditions of this certification to provide safe, timely, and effective passage to reestablish self-sustaining, harvestable populations of native migratory fish species into Oregon tributaries above Hells Canyon dam during the term of the new license.
3. **Public Review and Comment.** ODEQ shall provide an opportunity for public review and comment regarding any alternative measure plan prior to its approval.

## **X. General Conditions.**

- A. **Document Submittal and Review Process.** Except as provided in this certification IPC shall follow the submittal and review process set forth in this section with respect to all documents required by this certification to be submitted to the ODEQ for approval, and this process shall be followed until the document is approved by ODEQ or the document review time frame has expired.
  1. After IPC submits a document, ODEQ will (a) notify IPC in writing that the document is approved; (b) notify IPC in writing of any deficiencies in the document; or (c) modify the document and approve the document.
  2. If ODEQ notifies IPC of deficiencies in the document, IPC shall submit a document revised to cure those deficiencies within 30 calendar days of receipt of the notice.
  3. The submittal process shall be repeated until ODEQ notifies IPC that the document is approved. However, IPC's documents shall meet the requirements of this certification no later than 90 days from ODEQ's notification of deficiencies and IPC's failure to develop an ODEQ-approved document within such time frame will be considered a violation of this condition of this certification.
  4. Once documents are approved by ODEQ, IPC shall submit these documents to FERC with a request that such documents be incorporated into and enforceable as a

part of this license. IPC shall implement this certification in accordance with its terms and conditions.

- B. Certification Compliance Schedules.** If any event occurs that is beyond the IPC's reasonable control and that causes or may cause a delay or deviation in compliance with schedules contained in this section 401 Certification and the required plans, IPC shall immediately notify the DEQs in writing of the cause of delay or deviation and its anticipated duration; the measures that have been or will be taken to prevent or minimize the delay or deviation; and the timetable by which IPC proposes to carry out such measures. It is IPC's responsibility in the written notification to demonstrate to the DEQ's satisfaction that the delay or deviation has been or will be caused by circumstances beyond the control and despite due diligence of IPC. If IPC so demonstrates, the DEQs shall extend times of performance of related activities under this condition, as appropriate. Circumstances or events beyond IPC's control include, but are not limited to, acts of nature, unforeseen strikes, work stoppages, fires, explosion, riot, sabotage, or war. IPC may also consider other circumstances or events as beyond IPC's control. These other circumstances or events may include, but not be limited to, changes in state statutes; delays in the receipt of necessary approvals for construction design or permits; or delays that ODEQ agrees IPC would not have been expected to anticipate. These other circumstances or events will only be considered if they are not due to the actions or inactions of IPC. Increased cost of performance or consultant's failure to provide timely reports may not be considered circumstances beyond IPC's control.
- C. § 401 Certification Modification.** ODEQ may modify this Certification to add, delete, or alter Certification conditions as necessary and feasible if:
1. Changes in conditions regarding operation of the Project from those described in the Application will affect or might affect compliance with water quality standards and requirements;
  2. There are changes to water quality standards, the TMDL, applicable federal laws or other appropriate requirements of state law; or
  3. Modifications are otherwise authorized under state law, including but not limited to OAR 340-048-0050.
- D. Project Changes.** IPC shall notify the DEQs of any change in ownership, scope, or operation of the Project. IPC shall obtain the DEQs' review and approval before undertaking any such change to the Project, including but not limited to changes to Project structures, construction, operations, and flows, which may potentially affect water quality.
- E. Project Repair or Maintenance.** IPC shall obtain ODEQ's review and approval before undertaking Project repair or maintenance activities that may potentially affect water quality. ODEQ may, at IPC request, approve specified repair and maintenance activities on a periodic or ongoing basis.
- F. Project Inspection.** IPC shall allow the DEQs such access as necessary to inspect the Project area and Project records required by this Certification at reasonable times as necessary to monitor compliance with § 401 Certification conditions.
- G. Posting of § 401 Certification.** IPC shall post a copy of these Certification conditions in prominent locations at each of the Project Powerhouses.

- H. **Water Quality Standards Compliance.** Notwithstanding the conditions of this Certification, no wastes shall be discharged and no activities shall be conducted which will violate state water quality standards.
- I. **Conflict Between Certification Conditions and Application.** To the extent that there are any conflicts between the terms and conditions in this certification and how activities, obligations, and processes are described in the Application, the terms and conditions in this certification, as interpreted by ODEQ, shall control.
- J. **State DEQ Coordination.** Subject to the requirements of their respective state laws, ODEQ and IDEQ shall use their best efforts to cooperatively administer and oversee implementation of their respective § 401 Certifications, including any adaptive management adjustments thereto.
- K. **Dispute Resolution.** In the event of a dispute between IPC and the DEQs, including without limitation a dispute that arises because IPC receives conflicting decisions from the DEQs, regarding implementation of 401 certifications, including any adaptive management adjustments thereto, IPC shall notify the DEQs within thirty (30) calendar days of its actual knowledge of the act, event, or omission giving rise to the dispute. Within thirty (30) calendar days of that notice, IPC shall convene one meeting or conference call to attempt to resolve the dispute at the level of implementing staff for IPC and the DEQs. If the dispute is not resolved within fifteen (15) calendar days after the first meeting or call, IPC shall convene a second meeting or conference call within forty-five (45) calendar days of the first meeting or call to attempt to resolve the dispute at the level of supervisory staff for IPC and the DEQs. If the dispute is not resolved within fifteen (15) calendar days of the second meeting or call, IPC shall give notice to the DEQs that there remains a dispute among these entities. Within a reasonable time, ODEQ and IDEQ shall give notice to IPC of their resolution of the disputed matter, and IPC shall take actions required by the DEQs in this notice. In the event that ODEQ and IDEQ do not agree on a final resolution, ODEQ and IDEQ reserve their respective authorities under the Clean Water Act and state law to make decisions or require actions on disputed matters.
- L. **Project Specific Fee.** IPC shall pay the project-specific fee as required by applicable law and in the manner and amount as particularly described in Exhibit B, which is incorporated here in its entirety by this reference.

## Exhibit A – Proposed Operations

<b>Operating Constraint</b>	<b>Brownlee</b>	<b>Oxbow</b>	<b>Hells Canyon</b>
<b>Maximum reservoir elevation</b>	2,077 feet msl	1,805 feet msl	1,688 feet msl
<b>Minimum reservoir elevation</b>	1,976 feet msl	1,795 feet msl	1,678 feet msl
<b>Flood control requirement</b>	ACOE flood-control rule curve requirements	NA	NA
<b>Daily reservoir level fluctuation</b>	3 feet, except 1 foot during 30-day resident fish spawning period (approximately May 21 through June 21)	5 feet, except 10 feet under atypical conditions <sup>1</sup> (January 1 through December 31)	5 feet, except 10 feet under atypical conditions (January 1 through December 31)
<b>Reservoir target elevation</b>			
June 7	2,069 ft msl or higher	NA	NA
June 8 through July 5	2,075 ft msl	NA	NA
October 21	Fall Chinook program time period <sup>2</sup>	NA	NA
<b>Bypass flow (January 1 - December 31)</b>	NA	100 cfs	NA
<b>Ramp-rate restriction</b>	NA	NA	1 foot per hour, both up and down <sup>3</sup>
<b>Daily limit between minimum and maximum flows</b>			
December 12 through May 31	NA	NA	none
June 1 through September 30	NA	NA	10,000 cfs 16,000 cfs <sup>4</sup>
October 1 to October 20	NA	NA	none
October 21 through December 11	NA	NA	no load following <sup>5</sup>

<sup>1</sup> Atypical conditions are when IPC determines that operation of the Hells Canyon Project, which operation may occur automatically or manually, is needed to 1) protect the performance, integrity, reliability or stability of the Applicant's electrical system or any electrical system with which it is interconnected; 2) compensate for any unscheduled loss of generation; 3) provide generation during severe weather or extreme market conditions; 4) inspect, maintain, repair, replace, or improve the Applicant's electrical system or facilities related to the HCC; 5) prevent injury to people or damage to property; or 6) assist in search-and-rescue activities. The typical operating limit would be 5 ft.

<sup>2</sup> IPC proposes to operate the HCC in compliance with the fall Chinook plan, and the exact start and end times will vary from year to year. The date specified is for modeling purposes only. The reservoir elevation at the initiation of flows under the plan is a function of flow forecasts.

<sup>3</sup> IPC proposed that compliance be measured at Johnson Bar, which is located approximately 18 miles downstream of Hells Canyon Dam.

<sup>4</sup> A limit of 16,000 cfs is proposed for atypical conditions. See *supra* note 1.

<sup>5</sup> IPC clarified that under the new license the beginning and ending dates of the fall Chinook program would vary.

## Exhibit B – Project Specific Fee

Amount: The annual cost of overseeing implementation of the conditions in the Clean Water Act section 401 certification is set forth in the table below (“Project Specific Fee”).

Year	Project Specific Fee
1	120,000
2	120,000
3	106,000
4	108,000
5	108,000
6-30	71,000

Idaho Power Company (“IPC”) shall pay this Project Specific Fee in each of the first thirty (30) years beginning July 1 of each year following issuance of a FERC license in 2016 dollars adjusted according to the formula set forth below, and IPC shall pay an initial prorated payment within thirty (30) days following issuance of a FERC license for the period from the date of FERC license issuance to the first June 30 which follows that license issuance.

Adjustment: The Project Specific Fee must be adjusted annually, according to the following formula:

$$AD = D \times (CPI-U)/(CPI-U-December 2016)$$

Where:

AD = Adjusted dollar amount payable to Oregon Department of Environmental Quality.

D = Dollar amount pursuant to Project Specific Fee above,

CPI- U = the most current published version of the Consumer Price Index-Urban. The CPI-U is published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted by written agreement between ODEQ and Idaho Power Company.

Payment Schedule: Except for the initial prorated payment due within thirty (30) days following issuance of a FERC license, IPC shall pay the Project Specific Fee within thirty (30) days of receipt of invoice from ODEQ, and make the payment payable to the Oregon Department of Environmental Quality.

Expenditure Summary: In accordance with ORS 543.080(9), each agency that receives all or any portion of the Project Specific Fee shall, on a biennial basis, provide IPC with a summary of project specific expenditures.

Termination; Extension: Prior to one year before the expiration of the Project Specific Fee, IPC shall meet with all agencies that oversee implementation of the conditions in the Clean Water Act section 401 certification to review the need, if any, to modify, extend, or terminate such oversight and corresponding Project Specific Fee. After such review, ODEQ shall propose modifications, an extension, or termination of the Project Specific Fee. Any dispute over ODEQ's decision related to any modification or extension of the Project Specific Fee shall be resolved in accordance with ORS 543.080(6).