KLAMATH
RIVER RENEWAL
CORPORATION

VIA Electronic Mail

July 23, 2018

Ms. Michelle Siebal
State Water Resources Control Board
Division of Water Rights - Water Quality Certification Program
P. O. Box 2000
Sacramento, CA 95812-2000

Re: Comments on Draft Water Quality Certification for Klamath River Renewal Corporation's Lower Klamath Project, Federal Energy Regulatory Commission Project No. 14803

Dear Ms. Siebal:

The Klamath River Renewal Corporation submits these comments in response to the State Water Resources Control Board's (SWRCB) notice of "Public Comment Period for Draft Water Quality Certification" (Draft Certification) issued on June 7, 2018 for the Lower Klamath Project. The Klamath River Renewal Corporation (KRRC or Renewal Corporation) is also submitting comments today to the Oregon Department of Environmental Quality (ODEQ) on its Proposed Clean Water Act Section 401 Certification and Draft Evaluation and Findings Report that were issued in May 2018 concerning the Lower Klamath Project.

The KRRC's comments are organized as follows. This cover letter provides general comments on the Draft Certification. Exhibit A provides technical comments on the Draft Certification, including inconsistencies between the conditions in the Draft Certification and corresponding information and measures in the KRRC's Definite Plan, redlined versions of the proposed conditions that correct or resolve the inconsistencies, and a redlined project schedule. Exhibit B provides a comprehensive redline of the Draft Certification.

General Comments

A. The Project Complies with Applicable Water Quality Standards

For the purpose of the Draft Certification, the Project consists of the removal of three dams (Copco No. 1, Copco No. 2, and Iron Gate) and associated facilities on the Klamath River, on conditions

consistent with the Klamath Hydroelectric Settlement Agreement, as amended (KHSA). The KHSA proposes to reestablish free-flowing conditions and provide volitional fish passage, in the portion of the Klamath River currently occupied by the Lower Klamath Project's dams and associated facilities. Three of the dams, Copco No. 1, Copco No. 2 and Iron Gate, are located in California, and the removal of those dams and associated facilities on the Klamath River are covered by the Draft Certification. The J.C. Boyle dam is located in Klamath County, Oregon, and removal of the J.C. Boyle dam and its associated facilities will be covered by a water quality certification issued by the ODEQ.

The Renewal Corporation agrees with the proposed conclusion in the Draft Certification, that implementation of the Project in accordance with the Definite Plan[1] and KHSA will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act (CWA), and with applicable requirements of California law.[2] Submittal of the Definite Plan to the FERC was required by the KHSA. By providing the Definite Plan to the State Water Board on June 29, 2018, the Renewal Corporation updated our previous submittal of an administrative draft of the definite plan on September 30, 2017, and our submittal of updated portions of the administrative draft on January 3, 2018.

Because the Draft Certification was issued prior to the State Water Board's receipt of the Definite Plan, a number of the proposed conditions in the Draft Certification refer to technical information that was included in prior administrative drafts. Exhibit A includes modifications to the proposed conditions, to reference updated technical information included in the Definite Plan. As the Definite Plan will support the FERC's decision whether to approve the joint transfer application and move forward to hear the surrender application, it is important that the State Water Board's final decision be based upon technical information included in the Definite Plan.

B. KRRC Ongoing Due Diligence on Project Elements in the Definite Plan

On March 15, 2018, the FERC issued an order granting the joint application to amend the project license and create the Lower Klamath Project.[3] The Commission stated in the March 15 Order that it was deferring its decision on the proposed license transfer because it needed to review the information provided in the Definite Plan before acting on the transfer application. In addition, on May 22, 2018, the FERC approved an independent Board of Consultants (BOC) for the Lower Klamath Project.[4] The BOC has been directed by FERC to independently review and assess aspects of the proposed dam removal process and the financial ability of KRRC to carry out that

[1] The Definite Plan was filed with the Federal Energy Regulatory Commission (FERC) on June 28, 2018, in support of the joint application to transfer the Lower Klamath Project from PacifiCorp to the Renewal Corporation.
[2] Draft Certification, p. 14.
[3] See, *PacifiCorp*, 162 FERC ¶ 61,236 (2018). FERC subsequently stayed the effectiveness of this new license. *PacifiCorp*, 163 FERC ¶ 61,028 (2018). For ease of reference, we use the term, Lower Klamath Project, to refer to the project consisting of four dams and appurtenant facilities.
[4] See, *PacifiCorp*, 163 FERC ¶ 61,208 (2018).

process. KRRC expects the BOC will convene to initiate its work on or before August 31, 2018. Concurrent with BOC review, over the course of the next six to nine months, KRRC will continue its due diligence on matters that affect project cost, construction and regulatory risk. This due diligence, together with BOC recommendations, will provide a greater level of detail for the various project elements proposed in the Definite Plan.

The Draft Certification authorizes the Renewal Corporation to submit implementation plans required by or included in the Definite Plan after FERC has approved license surrender for the Lower Klamath Project. At this time, the Renewal Corporation's goal is to submit the implementation plans prior to license transfer consistent with the FERC decision to review the information in the Definite Plan before acting on the joint transfer application. KRRC appreciates, however, the flexibility proposed in the Draft Certification to allow submission of implementation plans after license surrender, if necessary. This is consistent with our ongoing due diligence, the BOC review and potential modifications that may be required by conditions in the surrender order.

C. KRRC's Obligations Should End Upon License Surrender

A number of terms in the Draft Certification establish obligations for the Renewal Corporation that appear to be open-ended. For example, Condition 2, Water Quality Monitoring and Adaptive Management, requires implementation of the WQMP for the duration of the license surrender order or "until otherwise approved by the Deputy Director."[5] The Renewal Corporation will be allowed to surrender the FERC license for the Lower Klamath Project upon fulfilling the obligations prescribed by the FERC in the surrender order, including disposition of project works and restoration of lands of the United States.[6]

At the time of license surrender, the Renewal Corporation will have assigned its rights to any Lower Klamath Project lands or property in accordance with the Definite Plan and the surrender order. KRRC will no longer have a possessory right or other right to access any Lower Klamath Project lands or properties. The Renewal Corporation also will have assigned certain obligations to third parties who will be responsible for ongoing implementation of those obligations, e.g., the California Department of Fish and Wildlife will be responsible for operating the Iron Gate Hatchery after decommissioning of Iron Gate Dam and certain associated facilities. Therefore, KRRC's obligations under the Water Quality Certification should end upon the effective date of surrender of the license for the Lower Klamath Project.

The Renewal Corporation is proposing that a general sunset term be added to Condition 33 of the Draft Certification and corresponding clarification of Condition 6 and Condition 17 to address planning for the assignment of certain responsibilities to third-parties. These proposals are set

[5] Draft Certification, p.14.
[6] See, 18 C.F.R. § 6.2 (2018).

forth in Exhibits A and B. The Renewal Corporation has proposed similar changes to the Proposed Certification issued by the ODEQ.

Conclusion

The Renewal Corporation thanks the State Water Board for this opportunity to provide comments on the Draft Certification. The Renewal Corporation respectfully requests that the State Water Board incorporate our general and technical comments, including the redlined versions of proposed terms as in Exhibits A and B, in its final Water Quality Certification for the Lower Klamath Project.

Sincerely,

/s/ Mark Bransom

Mark Bransom
Executive Director
Klamath River Renewal Corporation

Cc: Service lists for FERC P-2082-062 and P-14083-000

EXHIBIT A

Technical Comments

TECHNICAL COMMENTS OF KLAMATH RIVER RENEWAL CORPORATION ON STATE WATER RESOURCES CONTROL BOARD, DRAFT WATER QUALITY CERTIFICATION FOR LOWER KLAMATH PROJECT

I.
Overview

This Exhibit A provides technical comments on the State Water Board's draft water quality certification for the Lower Klamath Project, as well as suggested revisions to maintain consistency with the Definite Plan and the KHSA.

II.
Conditions

Section 1.0. Background (page 1-2):

Comment: The license amendment has since been stayed by FERC. Recommend updating the language to refer to this status.

Suggested revision: "On the same day, the KRRC applied to FERC for permission to surrender the license for ~~decommission~~ the Lower Klamath Project (Project), including removal of the four developments, in accordance with the amended Klamath Hydroelectric Settlement Agreement. Also on September 23, 2016, the KRRC applied to the State Water Resources Control Board (State Water Board) for a water quality certification (certification) for the Project under section 401 of the Clean Water Act. On March 15, 2018, FERC approved separation of the Klamath Hydroelectric Project into two licenses, creating a new license for the Lower Klamath Project (FERC Project No. 14083).[2] On June 21, 2018, FERC stayed the effectiveness of the license for the Lower Klamath Project, pending its final action on the transfer application. The Definite Plan uses the term Lower Klamath Project for ease of reference."

Section 2.0. Lower Klamath Project Description (page 2):

Comment: Recommend changing references to the Definite Plan.

Suggested revision: "The KRRC proposes to implement ~~decommission~~ the Project consistent with: 1) the KHSA; 2) the September 23, 2016, certification application, including the Detailed Plan; and 3) the Definite Plan for the Lower Klamath Project ~~the September 30, 2017, California Environmental Quality Act (CEQA) and California and Oregon 401 Water Quality Certifications Technical Support Document; 4) the January 3, 2018, update to the Administrative Draft of the Definite Plan for Decommissioning; and 5) the submittal that updates Section 7.8 of the June 1, 2018 Fourth Administrative Draft of the Definite Plan for Decommissioning3,4~~. The KRRC's proposed Project schedule can be found in Attachment 1: KRRC's Proposed Project Schedule of this certification. The Project description is provided below, and includes discussions of each

dam and associated facilities from the most upstream facilities to the most downstream, followed by a discussion of other major Project elements (e.g., City of Yreka's water supply line replacement, hatcheries)."

Section 2.0. Lower Klamath Project Description (J.C. Boyle Complex, page 3):

Comment: KRRC will also be conducting seed collection and weed eradication at this location.

Suggested revision: "The proposed Project includes removal of all physical features associated with the J.C. Boyle Complex (i.e., all items listed above except the bypass reach). Prior to dam removal, the KRRC proposes to collect local seed and control invasive weeds, make access road improvements and create equipment staging areas. Cofferdams will be constructed, as appropriate, to create dry work areas.

Section 2.0. Lower Klamath Project Description (Copco No. 1 Complex, page 4):

Comment: KRRC will not be removing tunnels as part of the project. The tunnels will be plugged to prevent human access, but the plugs may be designed to allow bat access for wildlife habitat purposes. Recommend excluding removal of tunnels.

Suggested revision: "The proposed Project includes removal of all Copco No. 1 Complex features (i.e., all features listed above except the tunnels), with Copco No. 1 Dam removed to approximately 20 feet below the existing streambed level."

Section 2.0. Lower Klamath Project Description (Copco No. 1 Complex, page 4):

Comment: Cofferdams may also be used downstream of Copco No. 1 Dam. Recommend deleting reference to "upstream".

Suggested revision: "The initial drawdown of Copco No. 1 Reservoir is proposed to begin on November 1, commencing the Project drawdown period. Drawdown will initially proceed at the rate of not more than two feet per day, which is within the range of drawdown observed under existing hydroelectric operations. The maximum drawdown rate of five feet per day at Copco No. 1 Reservoir will not be implemented prior to January 15. The maximum additional discharge associated with drawdown of Copco No. 1 Reservoir will not exceed 6,000 cfs. Drawdown of Copco No. 1 Reservoir is anticipated to be complete by March 15. Cofferdams will be constructed ~~upstream of Copco No. 1 Dam~~, as appropriate, to create dry work areas."

Section 2.0. Lower Klamath Project Description (Copco No. 2 Complex, page 5):

Comment: KRRC will not be removing tunnels or bypass reaches as part of the project. The tunnels will be plugged to prevent human access, but the plugs may be designed to allow bat

access for wildlife habitat purposes. Bypass reaches will remain as part of the river channel. Recommend excluding removal of tunnels and bypass reaches.

Suggested revision: "The proposed Project includes removal of all Copco No. 2 Complex features (i.e., all features listed above except tunnels and the bypass reach), except for the switchyard, which will be partially removed. PacifiCorp plans to use the remaining portion of the switchyard for power transmission."

Section 2.0. Lower Klamath Project Description (Copco No. 2 Complex, page 6):

Comment: Correct reference to Copco No. 2.

Suggested revision: "Copco No. 2 Dam removal will occur via blasting, hydraulic excavators, diamond–wire saw cutting, and drilling. Inert debris such as concrete will be buried at a 3.5-acre disposal area located on the slope north of Copco No. 2 Reservoir (Attachment 2; Figure 4: Copco No. 1 and Copco No. 2 Disposal Site). Inert debris associated with Copco No. 2 ~~1~~ powerhouse may be buried within the existing tailrace channel. Approximately 2,100 cubic yards of bulk earthen fill, 16,600 cubic yards of bulk concrete, 400 tons of reinforced steel, 2,200 tons of mechanical and electrical equipment, 2,300 cubic yards of building waste, 700 tons of treated wood, and 6.5 miles of transmission line will be removed. Recyclable materials will be sorted and brought to local recycling centers. Hazardous waste will be removed from the Project area and disposed per a Hazardous Materials Management Plan."

Section 2.0. Lower Klamath Project Description (Iron Gate Complex, page 6):

Comment: KRRC will not be removing tunnels as part of the project. The tunnels will be plugged to prevent human access, but the plugs may be designed to allow bat access for wildlife habitat purposes. Recommend excluding removal of tunnels.

Suggested revision: "The proposed Project includes removal of all physical features listed above with the exception (in the areas noted above with an *) of the fish hatchery warehouse, hatchery building, four fish-rearing ponds, visitor information center, four employee residences, ~~and~~ two recreation facilities (Jenny Creek and Fall Creek), and diversion tunnel, which will be plugged. The KRRC proposes to make a later determination on whether or not to remove the Jenny Creek and Fall Creek recreation facilities."

Section 2.0. Lower Klamath Project Description (Iron Gate Complex, page 6):

Comment: As reflected in the Definite Plan, and pursuant to the Klamath Hydroelectric Settlement Agreement ("KHSA") section 7.6.6, PacifiCorp will fund modifications to the hatchery, as well as operations for a period of eight years following the decommissioning of Iron Gate Dam. PacifiCorp will transfer the hatchery to the State of California. KRRC will enter into an agreement with PacifiCorp and the State of California to implement these respective

responsibilities. The discussion of the Iron Gate complex should be augmented to address and clarify the respective roles of these parties.

Suggested revision: "The proposed Project includes removal of all physical features listed above with the exception (in the areas noted above with an *) of the fish hatchery warehouse, hatchery building, four fish-rearing ponds, visitor information center, four employee residences, ~~and~~ two recreation facilities (Jenny Creek and Fall Creek), and diversion tunnel, which will be plugged. The KRRC proposes to make a later determination on whether or not to remove the Jenny Creek and Fall Creek recreation facilities. KRRC will enter into an agreement with PacifiCorp and the State of California providing for: (1) the transfer of the hatchery to the State of California concurrent with license transfer or at some other agreeable time, and (2) modification of the hatchery and operations thereafter, subject to PacifiCorp's funding, all as provided in Klamath Hydroelectric Settlement Agreement ("KHSA") section 7.6.6."

Section 2.0. Lower Klamath Project Description (Iron Gate Complex, page 6):

Comment: The reference to spillway gates is confusing when discussing the diversion tunnel gates. Recommend deleting "spillway".

Suggested revision: "The following activities will be performed prior to removal of the Iron Gate Complex: local seed collection and invasive weed control; access road improvements; and creation of equipment staging areas. Additionally, the diversion tunnel will be equipped with new remote operated ~~spillway~~ gates capable of discharging 16,000 cfs.

Section 2.0. Lower Klamath Project Description (Hatchery Modifications, page 8):

Comment: Recommend adding clarification to identify hatchery operator.

Suggested revision: "Prior to initiating Project drawdown activities, the proposed Project includes modifications to Iron Gate Hatchery and reconstruction of the Fall Creek Hatchery to allow for continued salmonid hatchery production by the State of California during, and for eight years following, removal of the four dams. Hatchery operations by the State of California will be managed by a Hatchery Operations Management Plan."

Section 2.0. Lower Klamath Project Description (Hatchery Modifications, page 8):

Comment: Recommend adding clarification to footnote 8 on the locations of coho hatching and rearing.

Suggested revision: "Coho salmon eggs and fry will be hatched and reared at FCH, IGH, or a portion at each facility. For those hatched at IGH, Coho eggs will be hatched and reared until they reach a size of approximately 300 fish per pound at Iron Gate Hatchery and then will be transported to Fall Creek Hatchery for rearing until release."

Condition 1. Water Quality Monitoring (Types of Sampling, page 15):

Comment: Concentrations of chlorophyll-a can be more reliably characterized by sampling and laboratory analysis. This will also increase consistency with the OR 401. Recommend moving chlorophyll-a to Category 2: Water Quality Grab Samples. KRRC recommends sampling and analyzing for microcystin cell count or concentration because it improves consistency and comparability with existing Oregon Heath Authority criteria for issuing and lifting public health advisories.

Suggested revision: "Category 1: Continuous Water Quality Monitoring
The Licensee shall continuously (hourly readings averaged based on 15-minute interval recordings) monitor the following water quality parameters:

(1) dissolved oxygen (DO) in milligrams per liter (mg/L) and percent saturation;
(2) water temperature;
(3) turbidity;
(4) conductivity; and
(5) ~~chlorophyll-a; and~~
~~(6)~~ pH.

Category 2: Water Quality Grab Samples
The Licensee shall collect and analyze water quality grab samples for the following parameters:

(1) total nitrogen;
(2) total phosphorus;
(3) organic phosphorus;
(4) particulate organic carbon;
(5) dissolved organic carbon;
(6) nitrate;
(7) nitrite;
(8) ammonia;
(9) orthophosphate;
(10) turbidity;
(11) microcystin cell count ~~toxicity~~ (beginning May 1 following drawdown activities and continuing annually thereafter from May 1 through October 31);
(12) suspended sediment concentrations;
(13) methylmercury (Klamath River monitoring locations below Copco No. 1);
(14) settleable solids; and
(15) total and dissolved aluminum (Klamath River monitoring locations below Iron Gate).
(16) chlorophyll-a"

Condition 1. Water Quality Monitoring (Category 2 Frequency, page 15):

Comment: Monthly frequency is sufficient to characterize and track water quality parameters prior to drawdown and during low flows. Higher frequency sampling should be focused during key project phases of drawdown. Recommend reducing frequency of Category 2 grab samples to monthly for all parameters except suspended sediment concentration (SSC) to be consistent with Oregon 401 conditions and the Definite Plan.

Suggested revision: "Monthly for all constituents. For SSC, increase frequency to weekly during drawdown and subsequent wintertime high flow periods ~~prior to drawdown and during low flow periods following drawdown. Increase frequency to a minimum of every two weeks during drawdown and subsequent high flow periods~~ at approximately the same time of day, during and following drawdown."

Condition 1. Water Quality Monitoring (Monitoring Locations, page 16):

Comment: There is no existing USGS gage at the Stateline location and access is limited due to property ownership and difficult road conditions in winter. The site below J.C. Boyle has an existing USGS gage and flow and water quality is considered representative of the Stateline location. There is no existing USGS gage at Jenny Creek. Sediment discharge from Jenny Creek is not significant and is independent of dam removal. Trinity River: Sediment load from the Trinity River is independent of dam removal. Proposed monitoring within the Klamath River at Orleans and Klamath is sufficient to estimate Trinity river load and characterize sediment load impacts of dam removal. The Klamath River at Klamath (USGS stream gage 11330500) is located within the Estuary and would be redundant to a second estuary location. A reduced set of parameters (Cat. 1 and SSC only) is proposed at Klamath upstream of Copco No. 1 and Klamath downstream of Copco No. 2 Powerhouse. Due to their proximity and limited resources in the Copco 2 bypass reach, Copco and Iron Gate reservoirs can be treated as a single reservoir and many of the Category 2 parameters can be adequately characterized with data from the established J.C. Boyle and Iron Gate sites. Recommend removing the following monitoring locations not identified in the Definite Plan: Stateline, Jenny Creek, Trinity River, Klamath River Estuary and modifying parameters at: Klamath upstream of Copco No. 1 and Klamath downstream of Copco No. 2 Powerhouse.

Suggested revision: "Continuous Water Quality Monitoring (Category 1) and Water Quality Grab Samples (Category 2) shall be conducted at the following locations:

- Klamath River at or near United State Geological Survey (USGS) gage no. 11509500 (below Keno)
- Klamath River at or near USGS gage no. 11510700 (below J.C. Boyle)
- ~~California/Oregon Stateline~~;
- Klamath River upstream of Copco No. 1 Reservoir, and downstream of Shovel Creek (for suspended sediment grab samples and Category 1 monitoring only);

• Klamath River downstream of Copco No. 2 Powerhouse, no further downstream than the Daggett Road bridge crossing of the Klamath River (for suspended sediment grab samples and Category 1 monitoring only);
~~• Jenny Creek within 1,000 feet upstream of Iron Gate Reservoir's footprint (for suspended sediment grab samples and continuous turbidity monitoring only);~~
• Klamath River at or near USGS gage no. 11516530 (below Iron Gate);
• Klamath River at or near USGS gage no. 11520500 (below Seiad Valley);
• Klamath River at or near USGS gage no. 11523000 (Orleans); and
• ~~Trinity River at or near USGS gage no. 1153000 (for suspended sediment grab samples and continuous turbidity monitoring only);~~
• Klamath River at or near USGS gage no. 11530500 (Klamath)~~; and~~
~~• Klamath River Estuary~~.

Klamath Riverbed Sediment Grab Samples (Category 3) shall be collected at the following locations[17]:

• Klamath River upstream of Copco No. 1 Reservoir and downstream of Shovel Creek;
• Three locations in the Copco No. 1 Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
• Klamath River downstream of Copco No. 2 Powerhouse, no further downstream than the Daggett Road bridge crossing of the Klamath River;
• Three locations in the Iron Gate Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
• Klamath River at or near USGS gage no. 11516530 (below Iron Gate);
• Klamath River at or near USGS gage no. 11523000 (Orleans); and
• Klamath River at or near USGS gage no. 11530500 (Klamath).
~~• Klamath River Estuary.~~"

Condition 1. Water Quality Monitoring (Reporting, page 17-18):

Comment: Following dam removal, many of the Category 2 parameters, currently generated within the reservoirs (i.e., microcystin, organic carbon), are expected to cease after drawdown, and will only come from upstream sources. Statistically valid data that demonstrate previous dam/reservoir locations are no longer a source should be considered sufficient to cease monitoring for the parameters of concern. Recommend including acceptable conditions for reducing or discontinuing monitoring.

Suggested revision: "Any proposal to modify, reduce, or discontinue monitoring shall be included in the reports with a request for Deputy Director approval and must include information to support the request, such as statistically valid findings that dam removal actions are no longer impacting water quality."

Condition 2. Compliance Schedule (page 18-21):

Comment: Many of the parameters in Table 1 including temperature, DO and specific conductance, may exceed WQ objectives from upstream factors unrelated to dam removal. KRRC will have no mechanism to improve exceedances unrelated to dam removal. Adequate protection is provided in the following 401 condition: "If a water quality objective is exceeded and the Licensee believes the exceedance it is not a result of Project activities, the Licensee shall provide information and rationale demonstrating that the exceedance is not related to Project activities."

Suggested revision: None.

Condition 3. Reservoir Drawdown (Drawdown Plan, page 21):

Comment: The drawdown plan will be based on the information in the Definite Plan. Recommend revising to refer to that document.

Suggested revision: "(1) The material elements of the drawdown plan presented in Section 4 of the Licensee's ~~January 3, 2018, update to the Administrative Draft of the~~ Definite Plan for the Lower Klamath Project ~~Decommissioning~~, and any subsequent updates thereto. If the Licensee proposes to change any elements material to water quality, the Drawdown Plan shall highlight such changes and provide a rationale, including any new information relied on;"

Condition 3. Reservoir Drawdown (Cofferdams, page 22):

Comment: The condition specifies that "all bypass routes (e.g., pipelines, outlets, etc.) shall be properly sealed upon completion of Project activities to prevent human and wildlife access to these areas." The KRRC is still investigating whether the original diversion tunnels, which will be used during drawdown, may provide suitable bat habitat following drawdown. If the tunnels could provide suitable habitat, then the preference would be to seal the tunnels in such a manner to prevent human access while allowing bat access.

Suggested revision: "…all bypass routes (e.g., pipelines, outlets, etc.) shall be properly sealed upon completion of Project activities to prevent human and wildlife access to these areas, unless otherwise managed for other resources (e.g. bat habitat)."

Condition 3. Reservoir Drawdown (Drawdown of Copco No. 1, page 23):

Comment: The requirement to start Copco No. 1 drawdown "no sooner than November 1 and no later than December 15" is sufficient to describe the proposed drawdown procedure timeline. Recommend deleting reference to delaying the drawdown for one year.

Suggested revision: "The maximum additional discharge below Copco No. 1 Dam associated with Copco No. 1 drawdown shall be limited to 6,000 cfs, unless otherwise approved by the Deputy Director based on new information provided in the Drawdown Plan. ~~If initial drawdown of Copco No. 1 reservoir has not started by December 15, drawdown activities shall be delayed until at least November 1 of the following calendar year.~~"

Condition 3. Reservoir Drawdown (Drawdown of Copco No. 2, page 23):

Comment: The requirement to conclude Copco No. 2 drawdown by March 15 is not consistent with the Definite Plan. The volume of Copco No. 2 Reservoir is very small (approximately 70 acre-feet) and is expected to contain only small amounts of sediment. The Definite Plan proposes to shutdown Copco No. 2 powerhouse on May 1, and the drawdown would commence then and conclude in approximately 1 day. Recommend revising to start Copco No. 2 drawdown by May 15.

Suggested revision: "Copco No. 2 drawdown shall ~~conclude~~ start no later than ~~March~~ May 15 of the year following initiation of Copco No. 1 drawdown."

Condition 3. Reservoir Drawdown (page 23):

Comment: It is not possible to complete the removal of the earthen dams during drawdown. During drawdown the earthen dams will need to be connected to their spillways during winter storms to prevent overtopping conditions. Removal of Copco No. 1 and Copco No. 2 are not proposed during drawdown. Removal of the dams will occur after drawdown is complete during low flows periods. Recommend revising the language to reference dam removal during other periods.

Suggested revision: "Removal of the Project dams shall begin and be completed, to the extent feasible, ~~during~~ after drawdown during low flow conditions to minimize the duration of sediment releases, and to comply with the schedule set forth in the Compliance Schedule (Condition 2) of this certification. Additionally, drawdown and dam deconstruction shall be conducted so as not to interfere with instream flow requirements[19] below Iron Gate Dam."

Condition 4. Anadromous Fish Presence (page 24):

Comment: Anadromous fish presence monitoring is not included in the Definite Plan or as part of any measures proposed by KRRC and developed in coordination with the Aquatic Technical Working Group (ATWG). Following dam removal, the KRRC can ensure fish passage in the mainstem Klamath River including access into fish bearing tributaries within the reach from Iron Gate Dam to the California / Oregon border but cannot guarantee the presence of those anadromous fish species listed in Condition 4. The KRRC recommends that any long-term monitoring of anadromous species recolonization or species abundance within the former hydroelectric reach should be undertaken as part of future management planning efforts by the

responsible agencies including, CDFW, ODFW NMFS, and USFWS. We include fish passage monitoring and maintenance and tributary connectivity in the Aquatic Resources Measures and the Reservoir Area Management Plan of the Definite Plan. We recommend that this condition be removed from the certification.

Suggested revision: Delete this condition in full.

Condition 5. Aquatic Resources (page 26):

Comment: Recommend revising references to the Definite Plan and deleting measure numbering to be consistent with the Definite Plan.

Suggested revision: "The Licensee shall implement Aquatic Resource (AR) Measures ~~1, 2, 4, 6, and 7~~ as proposed in the Licensee's Definite Plan for the Lower Klamath Project, Appendix I ~~May 2018, Appendix I of the Third Administrative Draft of the Definite Plan for Decommissioning20 (May 2018 Appendix I)~~, and as updated based on the requirements presented in this condition. Except to the extent changes are required by this condition, the Licensee shall submit any proposed changes in the material terms of the measures as described in the Definite Plan ~~May 2018~~ Appendix I, along with an explanation of the reason for the proposed change and any additional information relied on. The Deputy Director may approve, deny, or conditionally approve any changes proposed by the Licensee."

Condition 5. Aquatic Resources (AR-1 Action 1, page 26):

Comment: The proposed Action 1 is inconsistent with the Definite Plan. Based on feedback from ATWG, the original proposal to monitor tributary confluence connectivity following a 10-year event as measured at the Iron Gate Dam gage was lowered to a 5-year flow event based on subsequent comments received from the Yurok Tribe. Additionally, the Definite Plan specifies that the additional monitoring event will only take place if the 5-year event occurs within the first two years following drawdown. Also, the start of proposed tributary monitoring period of two years begins at different times based on drawdown activities and likely fish presence in the upstream and downstream reaches.

Suggested revision: "The Tributary-Mainstem Connectivity Plan shall include monitoring for ~~at least~~ two calendar years, consistent with the schedule included in Table 4-1 of the Definite Plan ~~directly following the completion of drawdown activities~~, and within one month following ~~a ten~~ any five-year flow event that occurs within the first two years following the completion of drawdown."

Condition 5. Aquatic Resources (AR-2 Action 1, page 27):

Comment: The SWRCB requests that a minimum of 15 sites be surveyed as opposed to a maximum of 15 sites as specified in the Definite Plan. Previous guidance from the ATWG

specified that there are relatively few sites in the mainstem Klamath River between Iron Gate Dam and the Trinity River where overwintering juvenile coho salmon would be expected to be found. Final sampling locations are to be determined in coordination with the ATWG.

Suggested revision: "The Licensee shall survey a minimum of 10 and a maximum of 15 sites in the Klamath River between Iron Gate Dam (RM 192.9) and the Trinity River (RM 43.4) during the pre- and early-drawdown surveys described in AR measure 2, Action 1 to evaluate the presence and relative abundance of yearling coho salmon."

Condition 5. Aquatic Resources (AR-2 Action 2, page 27):

Comment: Same comment as on AR-1 Action 1. The suggested revision in AR-1 Action 1 is intended to also apply to AR-2 Action 2.

Suggested revision: No change since the language in the draft water quality certification specifically refers to AR Measure 1, Action 1.

Condition 6. Remaining Facilities (page 28):

Comment: The Renewal Corporation is proposing that a general sunset term be added to Condition 33 of the Draft Certification. In parallel with minor modifications to condition 7 of the Oregon Department of Environmental Quality draft water quality certification, the Renewal Corporation is requesting a corresponding clarification of Condition 6 of this Draft Certification that addresses planning for the assignment of certain responsibilities to third-parties.

Suggested revision: "No later than six months following issuance of the FERC license surrender order, and prior to Project implementation, the Licensee shall submit a Remaining Facilities and Operations Plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Remaining Facilities and Operations Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Remaining Facilities and Operations Plan upon Deputy Director and any other required approvals. Any changes to the Remaining Facilities and Operations Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Remaining Facilities and Operations Plan shall include:

(1) A description of all Project facilities and structures that will ~~not be removed~~ be retained during Project implementation, including but not limited to Iron Gate Hatchery, the Fall Creek Hatchery, and any Project facilities buried in place;

(2) An analysis of potential water quality impacts associated with remaining facilities and operations, including hazardous materials or wastes present at the facilities and the potential for erosion or runoff to surface waters;

(3) Measures the Licensee proposes to ensure remaining facilities do not contribute to water quality impairments; and

(4) Provisions to assure that ~~How~~ any ongoing measures will be implemented once title of the facilities and/or responsibility for operations is transferred to another entity, which transfer shall not occur later than the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project.~~following conclusion of the Project.~~

Condition 7. City of Yreka Water Supply (page 29):

Comment: Consultation with NMFS and CDFW have concluded that fish barriers on the tailrace channel will be sufficient and preferable to fish screens on the intake structures. In addition, the reference to the outage period is in the next paragraph below.

Suggested revision: "Any work the Licensee undertakes to ensure that the City of Yreka water supply intakes' structures ~~screens~~ comply with fish screen or fish barrier criteria shall be completed within the water delivery outage period specified below ~~above~~."

Condition 7. City of Yreka Water Supply (page 29):

Comment: The maximum outage period should be coordinated with City of Yreka.

Suggested revision: "The Licensee shall limit the water delivery outage to a maximum of 12 hours or greater as approved by the City. The Licensee shall coordinate the water delivery outage period with the City of Yreka to ensure the City of Yreka has an adequate supply of water stored to cover the 12-hour maximum water delivery outage period or alternative period as approved by the City."

Condition 8. Aquatic Vegetation Management (page 29-30):

Comment: Condition 8 requires the submission of a proposal for review in the event that chemical vegetation control is proposed to control algae or aquatic weeds. At this time, the KRRC does not propose to conduct chemical algae or aquatic weed control. The KRRC will comply with this condition.

Suggested revision: None.

Condition 9. Construction General Permit (page 30-31):

Comment: Condition 9 requires the development of water quality monitoring and protection plan for any activities that could affect water quality and which are not covered by the Construction General Permit or the provisions of the 401 Certification. The KRRC will comply with this condition.

Suggested revision: None.

Condition 10. Waste Disposal (page 32):

Comment: The Definite Plan includes placing concrete debris and soil/rock fill in the tailraces of the powerhouses and at the J.C. Boyle scour hole. These locations will involve disposal below the OHWM and in areas that drain to surface waters. In addition, these disposal areas are directly adjacent to the Klamath River and there is no room to construct catch basins to intercept runoff. Recommend deleting references to locating disposal sites above the OHWM and catch basins.

Suggested revision: "On-site disposal of inert, non-hazardous debris resulting from dam removal activities may be buried in accordance with requirements in division 2, title 27 of the California Code of Regulations. ~~The Licensee shall ensure that the disposal sites are above the ordinary high water mark (OHWM) and in a location that does not drain directly to surface waters.~~ The Licensee shall select disposal site locations where drainage patterns can be preserved. ~~If a waste disposal site has the potential to drain into surface waters, catch basins shall be constructed and other appropriate BMPs from the Caltrans BMP Manual shall be implemented, to intercept runoff before it reaches surface waters.~~

On-site disposal areas that will remain uncovered through the rainy season (between October 16 and May 14) shall be protected with appropriate BMPs from the Caltrans BMP Manual to prevent erosion. ~~In no circumstance shall spoil sites be located at or below the OHWM.~~ Reinforced steel and other recyclable materials should be recycled at local recycling facilities. Excavated embankment material may be used as topsoil to cover on-site disposal areas prior to grading and being sloped for drainage. Concrete rubble resulting from demolition of the powerhouses may be buried within the existing tailrace channel. All mechanical and electrical equipment shall be hauled to a suitable commercial landfill or salvage collection point. Prior to Project completion, all on-site disposal locations shall be graded and vegetated to reduce the potential for erosion."

Condition 11. Hazardous Materials Management (pages 32-33):

Comment: No Comment.

Condition 12. Hatcheries (page 34):

Comment: We would like to clarify the language regarding the "consultation" and the ownership and operation of the hatcheries.

Suggested revision: "Additionally, the Hatcheries Plan shall include comments received during ~~the~~ this consultation process with State Water Board, North Coast Regional Board, CDFW, and NMFS and identify how the Licensee has addressed the comments."

"…At a minimum, the Hatcheries Plan shall include:

(1) The Licensee's plan to construct, operate, ~~and~~ maintain the Fall Creek and Iron Gate Hatcheries, and facilitate transfer of ownership and continued operation of Iron Gate Hatchery to CDFW as presented in the Definite Plan for the Lower Klamath Project ~~Licensee's June 1, 2018 submittal of updates to Section 7.8 of the Administrative Draft of the Definite Plan for Decommissioning~~[7], and as updated based on the requirements presented in this certification. If the Licensee proposes to change any elements material to water quality, the Hatcheries Plan shall highlight such changes and provide a rationale, including any new information relied on;

(2) Annual fish production goals that include the target production numbers by species, life stage, and hatchery location;

(3) Identification of water supplies that will be used by CDFW to operate the Iron Gate and Fall Creek Hatcheries including location, anticipated diversion rates (cfs) and total amount (annual and monthly), minimum amount of flow that will be bypassed below the diversion to provide volitional fish passage; and compliance with any water right requirements associated with water diversions;

(4) Implementation actions to be used by CDFW for protection of hatchery and natural fish populations (as impacted by hatchery operations) in the event water supply to Iron Gate or Fall Creek Hatcheries is unavailable due to drought or other limitations; and

(5) Duration of each hatchery's operations by CDFW, including the timing of transfer of ownership and continued operation of Iron Gate Hatchery to CDFW.

Condition 13. Restoration (page 35):

Comment: We would like to clarify the language regarding the "consultation".

Suggested revision: "Additionally, the Restoration Plan shall include comments received during ~~the~~ this consultation process with State Water Board, North Coast Regional Board, and CDFW and identify how the Licensee has addressed the comments."

Condition 14. Water Supply Monitoring and Management (Surface Water Diversions, page 36):

Comment: Although not currently included in Definite Plan, annual Water Supply Management Reports could be provided to the Deputy Director prior to and following drawdown as part of CEQA planning process. Impacts to water intakes would occur over a shorter duration than two years and over a shorter distance than the 215+ miles from the California-Oregon state line to the

[7] The ~~June 1, 2018 update to Section 7.8 of the Administrative Draft of the~~ Definite Plan ~~for Decommissioning~~ is available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.shtml

Pacific Ocean. The Detailed Plan estimated that sediment deposition would primarily affect the river channel from Iron Gate Dam to Cottonwood Creek. KRRC recommends reducing duration and extent of monitoring.

Suggested revision: "The Licensee shall identify all points of diversion on the Klamath River between Iron Gate Dam and Cottonwood Creek listed in the Electronic Water Rights Information Management System (eWRIMS). The Licensee shall contact all water rights holders with points of diversion on the Klamath River between Iron Gate Dam and Cottonwood Creek to determine whether the water right holder is interested in working with the Licensee to evaluate potential Project impacts to the water right holder. If potential impacts are identified, the Licensee shall provide temporary accommodations (e.g., replacement water, settling basins, etc.) to address them. Following dam removal, the Licensee shall investigate ~~investigation~~ any impacts reported by a diverter. If the investigation confirms an adverse impact has occurred as a result of dam removal, the Licensee shall implement measures to reduce impacts and allow the water right holder to divert water in the same manner (e.g., amounts, suitable quality, and timing) as before dam removal.
Prior to and annually for the first two years following drawdown (drawdown year and subsequent year), the Licensee shall submit a Water Supply Management Report to the Deputy Director on implementation of the surface water supply activities described above. At a minimum, the report shall include: a map showing the location of potentially affected points of diversion; a description of the potential adverse effects; a description of proposed/implemented mitigation measures; and the number of water right holders who agreed to work with the Licensee to address potential water supply issues."

Condition 14. Water Supply Monitoring and Management (Groundwater, page 36):

Comment: The Definite Plan includes monitoring for "up to one year or until post-project groundwater levels and general water quality parameters have been determined (no discernable water level declines or changes in quality over a shorter duration than two years.)" Recommend reducing the duration of groundwater monitoring.

Suggested revision: "The Licensee shall continue to monitor groundwater levels, at least monthly, until otherwise approved by the Deputy Director and for a term of at least ~~two~~ one year~~s~~ following completion of drawdown of all Project reservoirs. … The Licensee shall submit an annual Groundwater Report to the Deputy Director, for the year prior to and the ~~a minimum of three~~ year~~s~~ directly following completion of drawdown."

Condition 15. Amphibian and Reptile Management (page 37-38):

Comment: This condition is inconsistent with the Definite Plan and informal consultation meetings with the resource agencies. The KRRC has been coordinating closely with USFWS, CDFW, and the SWRCB and none of these agencies have indicated that there is a concern related to amphibians and reptiles beyond monitoring and rescue from active work zones, such as within coffer dams. The agencies have not indicated that there is any biological reason for active

salvage of amphibians and reptiles from general reservoir drawdown areas. The biological resource agencies have indicated that most of the species listed in the draft 401 certification do not have suitable habitat within the project area and thus are not expected to occur in the project area or be affected by project activities. For the few species that may occur within the project area, they generally occur in very low numbers, have seasonal habits that would be protective, or there is not agency concern about their population within the Klamath Basin. For example, although there is some concern about populations of western pond turtle in Oregon and southern California, CDFW has not expressed the same concerns about the population in the Klamath basin in northern California. KRRC has held meetings with both ODFW and CDFW almost monthly for the past year. There have been multiple discussions about western pond turtle and foothill yellow-legged frog, the two species with any potential to occur in the project area. CDFW has indicated that they are satisfied that monitoring, salvage and relocation of western pond turtles from drawdown areas is not necessary and that there would be no effect on yellow-legged frogs. The KRRC intends to have biological monitors present during construction who will monitor work enclosures such as coffer dams or active construction areas for listed species and will be authorized to remove them from work zones.

Suggested revision: "…The Amphibian and Reptile Plan shall address protection of amphibians and reptiles previously found in the areas of the Project directly affected by ~~drawdown and~~ in-water construction and land-disturbing activities that are listed…"

"(4) Timing and locations where surveys will be conducted, including all areas of the Project directly affected by ~~drawdown~~ in-water construction and land-disturbing activities in California with known amphibian or reptile habitat or presence;"

Condition 16. Slope Stability (page 38):

Comment: The KRRC has assessed slope stabilities at all three reservoirs and analyzed slope stabilities within the Copco Lake footprint and the adjacent shoreline as documented in Appendix E of the Definite Plan. The following is a summary of those conclusions:

The geologic reconnaissance of the J.C. Boyle Reservoir rim did not reveal obvious stability problems. Based on the results of the geologic reconnaissance, the historic performance of the slopes above the reservoir level, and the bathymetry, KRRC concluded that deep-seated large landslides are not likely. Therefore, stability analyses for the rim of J.C. Boyle Reservoir are deemed not required to support the preliminary design. Shallower slides could occur in the surficial soil deposits around the reservoir rim and on the reservoir slopes that are currently below the reservoir surface.

Minor, shallow slides of existing material beneath the existing Copco Lake reservoir water surfaces are possible during drawdown. These minor slides would not extend outside of the current reservoir footprint and would only potentially impact resources within the limited slide footprint (e.g. cultural resources). Some larger deeper slides are also possible within Copco No. 1 reservoir where submerged higher bluffs exist along the original Klamath River channel. These shallow slides and potential slides along the river channel pose no threat to roads or private

property; however, KRRC will monitor these areas during and post-drawdown to assess any potential impact to existing cultural resources. The geologic assessment and slope stability analysis summarized in Appendix E indicate that certain segments along the Copco No. 1 reservoir rim have a potential for slope failure that could impact existing roads and/or private property. Additional field geologic data is required to confirm the potential for slope failure along certain reservoir rim segments. KRRC will complete the additional field investigation in July and August of 2018, followed by completion of a series of material property laboratory tests. KRRC will use results from the field investigation and laboratory testing to update stability assessments in the rim segments of concern in fall 2018.

Shallower slides are likely to occur in the shallow surficial deposits around the Iron Gate reservoir rim and on the reservoir slopes that are currently below the reservoir surface. Small, shallow soil failures in the more deeply weathered volcaniclastic beds and in colluvial deposits present a minor hazard to Copco Road where the road is immediately adjacent to the shore. These slope failures are likely to be shallow and local but may possibly require minor repair to maintain full use of the roadway.

The material deposited in the reservoirs and the diatomite in Copco Lake are fine grained and structurally weak when saturated. Failures of these materials along the river channel are expected as part of the drawdown portion of the Project and may occur during subsequent high flows. Furthermore, the Klamath River landscape is dynamic and includes natural slope instabilities along its banks, which the project will have limited effect on. The KRRC does not propose preventing soil erosion or maintaining slope stability accept in cases where public roads or public safety would be affected. Recommend removing language that requires avoiding slope instabilities.

Suggested revision: "The Licensee shall identify reservoir slopes and other Project areas prone to instability~~, and implement site-specific measures to avoid potential slope erosion and associated increases in sedimentation to surface waters throughout Project implementation~~. Additionally, the Licensee shall monitor for ~~and address~~ slope instability throughout the term of the Project, including restoration activities."

Condition 16. Slope Stability (page 38):

Comment: Recommend changing reference to the Definite Plan.

Suggested revision: "(1) The material elements of the Licensee's proposal related to stability of embankments and reservoir rims, as presented in Section~~s 3 and~~ 4 and Appendices D and E of the ~~Licensee's~~ Definite Plan ~~September 30, 2017, Technical Support Document~~, and as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Slope Stability Monitoring Plan shall highlight such changes and provide a rationale, including any new information relied on;"

Condition 16. Slope Stability (page 39):

Comment: The KRRC does not propose preventing soil erosion or maintaining slope stability accept in cases where public roads or public safety would be affected. Recommend that the purpose of slope stability measures is to protect public roads and public safety.

Suggested revision: "(5) A list of measures the Licensee will implement to protect access along public roads and maintain public safety ~~prevent erosion and maintain soil stability~~;"

Condition 16. Slope Stability (page 39):

Comment: The KRRC anticipates that erosion and slope failures during drawdown will affect water quality. Recommend removing references to slope instability effects on water quality.

Suggested revision: " (10) Slope inspections during drawdown of the reservoirs and after storm events, and implementation of any necessary repairs, replacements, and/or additional measures to minimize potential slope instability effects on public roads and public safety ~~water quality~~ based on inspection information;"

Condition 16. Slope Stability (page 39):

Comment: The KRRC anticipates that erosion and slope failures during drawdown will affect water quality. Recommend removing references to slope instability effects on water quality.

Suggested revision: "Upon request, the Licensee shall provide additional information regarding slope stability measures undertaken to address identified slope instability. If monitoring and inspection indicate that the measures identified in the Slope Stability Monitoring Plan are insufficient to protect public roads and public safety ~~water quality~~, the Deputy Director may establish a timeframe and require the Licensee to re-consult on the Slope Stability Monitoring Plan, make proposed changes, and resubmit the Slope Stability Monitoring Plan for Deputy Director approval."

Condition 17. Recreation Facilities (Recreation Facilities Plan (4)(5), page 40):

Comment: Recreational facilities will be operated and maintained by third-parties (not the KRRC) after the effective date of the surrender of the FERC license. The Recreation Facilities Plan will identify these third-party owners and operators and describe their responsibilities for ongoing maintenance and operation of these facilities.

Suggested revision:

"(4) Identification of any recreation sites to be added or maintained by third-party owners/operators following dam removal, including location, the types of facilities to be added or maintained, the entity that will own/operate and maintain the sites, ~~and~~ the proposed schedule

for completion of new facilities, and a proposal for transitioning recreation sites to the new owner/operator;"

"(5) Proposed recreation site restoration or improvements, the entity that will own/operate the sites, and a proposal for transitioning recreation sites to the new owner/operator;"

Condition 17. Recreation Facilities (Recreation Facilities Plan (9), page 40):

Comment: Any existing boat launching site modified by or new site developed by the KRRC would be developed in coordination with the current or future landowner/operator of that site. Based on feedback from potential future landowners received during development of the Draft Recreation Plan, these facilities will be developed only with passive amenities like parking turnouts and access paths/roads that do not generate new ongoing O&M commitments. Permanent boat cleaning stations would require the development of permanent infrastructure that would require long-term O&M commitments.

Suggested revision: "(9) Installation, if necessary, and maintenance of boat cleaning stations at Project boat ramps for the removal of aquatic invasive species will be the assessed by the facility operator/owner in accordance with applicable law in California."

Condition 17. Recreation Facilities (Recreation Facilities Plan (11), page 40):

Comment: As with the Remaining Facilities & Operations Plan discussed in Condition 6, the Recreation Facilities Plan should address planning for the assignment of certain responsibilities to third-parties.

Suggested revision: "(11) Annual reporting to the Deputy Director on implementation of the Recreation Facilities Plan that includes: the status of any proposed construction, removal, or modifications to Project recreation facilities; water quality monitoring results required per this condition; and any proposed modifications to the Recreation Facilities Plan requested by the Licensee. Before license surrender is effective pursuant to Condition 33, the KRRC will address how any ongoing measures will be implemented once ownership and responsibility for maintenance and operations of recreational facilities is transferred to another entity.

Condition 17. Recreation Facilities (Recreation Areas Water Quality Monitoring, page 40):

Comment: The collection and analysis of grab water samples will be completed at recreation sites that are currently and will remain river adjacent and provide for recreational water contact following reservoir drawdown. The microcystin toxin is the byproduct of blue-green algae generated in the Project reservoirs and other water warm, quiescent water bodies. Following dam removal blue-green algae production would be eliminated in the Project reach. Sampling should be conducted at Keno Dam to assess microsystin load from the Upper Klamath Basin and one year of monitoring to demonstrate absence of microsystin. Prior to drawdown, the recreation

facilities are the responsibility of PacifiCorp and will be monitored by PacifiCorp according to the conditions of IM15 or other requirements.

Suggested revision: "The Licensee or owner shall collect and analyze grab water samples as outlined below near recreation sites that will provide recreational water contact following reservoir drawdown and dam removal for protection of the recreational water contact (REC-1) beneficial use as defined in the North Coast Basin Plan."

"For fecal coliform and E.coli:

Timing: ~~Prior to drawdown, samples shall be collected during the 30-day period that spans the Independence Day holiday (June-July) and the Labor Day holiday (August-September).~~ Following completion of drawdown, sampling shall be performed as necessary to monitor beneficial use until each recreation facility is transferred to a new owner, as approved by the Deputy Director in the Recreation Facilities Plan."

"For microcystin toxin:

~~Prior to drawdown, the Licensee shall annually monitor for microcystin toxin at all Project recreation sites that provide for recreational water contact unless otherwise approved by the Deputy Director.~~ At a minimum, monitoring shall continue monthly (May through October) ~~for two years~~ following the completion of drawdown until each recreation facility is transferred to a new owner unless the recreation site is removed. For newly constructed or modified-existing recreation sites, the Licensee shall monitor microcystin toxins ~~for a minimum of two year~~ until each recreation facility is transferred to a new owner beginning with completion of construction, unless otherwise approved by the Deputy Director."

Condition 18. Limits on Hydropower Operations (page 42):

Comment: We suggest clarifying the language regarding the "consultation".

Suggested revision: "The Licensee shall solicit comments from the agencies listed above. Additionally, the Operations Plan shall include comments received during this ~~the~~ consultation process with the State Water Board, North Coast Regional Board, CDFW, NMFS, and USFWS and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Operations Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Operations Plan upon receipt of Deputy Director and any other required approvals."

Conditions 19 through 32 (pages 42-44):

Comment: No comment.

Condition 33: Necessary Federal, State Approvals (page 44)

Comment: A number of terms in the Draft Certification establish obligations for the Renewal Corporation that are open-ended. The KRRC will surrender the FERC license for the Lower Klamath Project upon fulfilling the obligations prescribed by the FERC in the surrender order, including disposition of project works and restoration of lands of the United States. At the time of license surrender, the KRRC will no longer have a possessory right nor the right to access any Lower Klamath Project lands or properties, and will have assigned certain obligations to third parties who will be responsible for ongoing implementation of those obligations. Therefore, the KRRC's obligations under the Water Quality Certification should end upon the effective date of surrender of the license for the Lower Klamath Project.

Suggested revision: "This certification shall not be construed as replacement or substitution for any necessary federal, state, and local Project approvals. The Licensee is responsible for compliance with all applicable federal, state, or local laws and ordinances and shall obtain authorization from applicable regulatory agencies prior to the commencement of Project activities. This certification shall terminate upon the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project, subject to prior assignment of continuing responsibilities to third parties."

Conditions 34 through 39 (pages 44-45):

Comment: No comment.

Attachment 1. KRRC's Proposed Project Schedule (page 46)

Comment: We suggest clarifications to the project schedule with the attached revisions. In addition, we provide a more detailed schedule for the Water Board's use.

Suggested revision: As shown in Attachment 1 and 1.A of the Draft Certification.

EXHIBIT B

Redlined Version of Draft Water Quality Certification

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for

KLAMATH RIVER RENEWAL CORPORATION
LOWER KLAMATH PROJECT

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 14803

Source: Klamath River

County: Siskiyou

DRAFT WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

Comments on the draft certification must be received by 12:00 pm (noon) on July 23, 2018.

Comments can be submitted by:

Email:
WR401Program@waterboards.ca.gov

or

Mail:
Ms. Michelle Siebal
State Water Resources Control Board
Division of Water Rights – Water Quality Certification Program
P.O. Box 2000
Sacramento, CA 95812-2000

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FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 14803

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STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for the

KLAMATH RIVER RENEWAL CORPORATION
LOWER KLAMATH PROJECT

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 14803

SOURCE: Klamath River

COUNTY: Siskiyou

DRAFT WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

BY THE EXECUTIVE DIRECTOR:

1.0 BACKGROUND

On September 23, 2016, PacifiCorp and the Klamath River Renewal Corporation (KRRC or Licensee) filed a joint application with the Federal Energy Regulatory Commission (FERC) to: separate PacifiCorp's Klamath Hydroelectric Project (FERC Project No. 2082) facilities into two separate projects (outlined below); and transfer ownership of the newly created project – the Lower Klamath Project – to the KRRC.

- Lower Klamath Project consists primarily of four dams and associated facilities, listed from upstream to downstream: (1) J.C. Boyle (Oregon); (2) Copco No. 1 (California); (3) Copco No. 2 (California); and (4) Iron Gate (California).

- Klamath Hydroelectric Project[1] consists primarily of the following facilities, listed from upstream to downstream: (1) East Side (Oregon); (2) West Side (Oregon); (3) Keno (Oregon); and (4) Fall Creek (California).

On the same day, the KRRC applied to FERC for permission to surrender the license for ~~decommission~~ the Lower Klamath Project (Project), including removal of the four developments, in accordance with the amended Klamath Hydroelectric Settlement Agreement. Also on September 23, 2016, the KRRC applied to the State Water Resources Control Board (State Water Board) for a water quality certification (certification) for the Project under section 401 of the Clean Water Act. On March 15, 2018, FERC approved separation of the Klamath Hydroelectric Project into two licenses, creating a new license for the Lower Klamath Project (FERC Project No. 14083).[2] On June 21, 2018, FERC stayed the effectiveness of the license for the Lower

[1] The Klamath Hydroelectric Project is not part of this water quality certification action.
[2] As of the date of this draft certification, FERC has deferred its decision on transferring Project ownership from PacifiCorp to the KRRC until FERC is provided with additional information needed to inform a transfer decision. As such, the Project is currently owned by PacifiCorp.

Klamath Project pending its final action on the transfer application. The Definite Plan uses the term Lower Klamath Project for ease of reference.

2.0 LOWER KLAMATH PROJECT DESCRIPTION

The Project is located on the Klamath River in Siskiyou County, California and Klamath County, Oregon (Attachment 2; Figure 1: Lower Klamath Project Location). The nearest city to the California portion of the Project is Yreka, which is located approximately 20 miles southwest of the downstream end of the Project.

The Project primarily consists of the ~~decommissioning and~~ removal of four dams (J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate) and associated facilities located in the Hydroelectric Reach (i.e., the Klamath River and tributaries from Iron Gate Dam [River Mile [RM]192.9] to the upstream extent of J.C. Boyle Reservoir [RM 233.0]) on the Klamath River. The Project implements portions of the Klamath Hydroelectric Settlement Agreement (KHSA), as amended on November 30, 2016. The KHSA is an agreement among: PacifiCorp; several state, federal, and local governmental agencies; Native American tribes; non-governmental organizations; irrigators; and individual stakeholders. The State Water Board is not a signatory to, and is not bound by, the KHSA. The KHSA seeks to return the Klamath River to free-flowing conditions and provide volitional fish passage in the portion of the Klamath River currently occupied by the Project's dams and associated facilities.

The KRRC proposes to ~~decommission~~ implement the Project consistent with: 1) the KHSA; 2) the September 23, 2016, certification application, including the Detailed Plan; and 3) the Definite Plan for the Lower Klamath Project ~~September 30, 2017, *California Environmental Quality Act (CEQA)* and *California and Oregon 401 Water Quality Certifications Technical Support Document;* 4) the January 3, 2018, update to the *Administrative Draft of the Definite Plan for Decommissioning*; and 5) the submittal that updates Section 7.8 of the June 1, 2018 *Fourth Administrative Draft of the Definite Plan for Decommissioning*~~[3][4]. The KRRC's proposed Project schedule can be found in Attachment 1: KRRC's Proposed Project Schedule of this certification. The Project description is provided below, and includes discussions of each dam and associated facilities from the most upstream facilities to the most downstream, followed by a discussion of other major Project elements (e.g., City of Yreka's water supply line replacement, hatcheries).

J.C. Boyle Complex: J.C. Boyle Dam and associated facilities are located on the Klamath River between RM 233 and RM 225 in Klamath County, Oregon. Primary components of the J.C. Boyle Complex include:

1) J.C. Boyle Reservoir, an approximately 2,267-acre-foot (AF) reservoir and associated facilities (Topsy Campground boat ramps, floating docks, and pier; Pioneer Park; and numerous dispersed shoreline recreation sites);

~~[3] The KRRC will further update its Project description with the issuance of a Definite Plan, which is expected to be submitted to FERC and the State Water Board no later than July 1, 2018. Prior to a final decision on the Project certification, the State Water Board will review and consider the Definite Plan.~~

[4] All referenced documents are available on the State Water Board's Lower Klamath Project website at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.shtml

2) J.C. Boyle Dam, a 68-foot combined earthen embankment and concrete dam with associated pool-and-weir fish ladder and concrete spillway;
3) An intake structure connecting to a 2.5-mile water conveyance system with an overflow forebay;
4) J.C. Boyle Powerhouse, a 98-megawatt (MW) facility;
5) A 4.6-mile bypass reach;
6) A switchyard with 2.8 miles of transmission lines; and
7) Ancillary buildings including an office building (known as the Red Barn), maintenance shop, fire protection building, communications building, two occupied residences, and a warehouse.

The proposed Project includes removal of all physical features associated with the J.C. Boyle Complex (i.e., all items listed above except the bypass reach). Prior to dam removal, the KRRC proposes to collect local seeds and control invasive weeds, make access road improvements and create equipment staging areas. Cofferdams will be constructed, as appropriate, to create dry work areas.

J.C. Boyle Reservoir drawdown will begin in January of the drawdown period[5]. Drawdown rates will be limited to five feet per day. Water will be released through the gated spillway, powerhouse intake, and two diversion culverts located beneath the dam. Modification to these facilities is not required prior to drawdown. Drawdown rates will be controlled by the spillway and capacity of the intake structure. The diversion culverts' concrete stop logs will be blasted once the reservoir stabilizes with the spillway and intake fully open, after which flows will be controlled by the capacity of the culverts, which is approximately 6,000 cubic feet per second (cfs).

J.C. Boyle Dam removal will occur via earth moving equipment, drilling, and blasting. Earthen materials generated from removal of J.C. Boyle Dam will be permanently buried on-site in a six-acre portion of the original borrow pit used to construct J.C. Boyle Dam, located on PacifiCorp property near the right abutment of J.C. Boyle Dam (Attachment 2; Figure 3: J.C. Boyle Disposal Site). Additionally, earthen material will be used to bury the powerhouse tailrace in place. Concrete rubble associated with removal of the J.C. Boyle Complex will be placed in an eroded scour hole below the forebay spillway structure created by J.C. Boyle power generation operations. Following concrete rubble placement in the scour hole, the scour hole will be covered with three to five feet of rock and soil debris sourced from material aggrading the river channel at the base of the scour hole. Removal of the J.C. Boyle Complex will generate approximately 130,800 cubic yards of bulk earthen material, 51,900 cubic yards of bulk concrete, 4,100 tons of rebar, 2,500 tons of mechanical and electrical equipment, 2,700 cubic yards of building waste, and 2.8 miles of transmission lines. Rebar, mechanical and electrical equipment, building waste, and powerlines will be disposed of offsite in a landfill near Klamath Falls. Hazardous waste will be removed from the Project area and disposed per a Hazardous Materials Management Plan.

[5] Drawdown is the release of Project reservoir water into the Klamath River to lower the elevation of the reservoirs and facilitate dam removal. The KRRC proposes to drawdown the Project reservoirs commencing with Copco No. 1 in November, followed by J.C. Boyle and Iron Gate in January, and concluding with Copco No. 2 in May.

Copco No. 1 Complex: The Copco No. 1 Complex is located on the Klamath River between RM 208.3 and RM 201.8 in Siskiyou County, California. Primary components of the Copco No. 1 Complex include:

1) Copco No. 1 Reservoir, an approximately 33,724-AF reservoir and associated Mallard Cove and Copco Cove recreation facilities;
2) Copco No. 1 Dam, a 133-foot concrete gravity arch dam, including a gated spillway and gatehouse on the right abutment, deck, and piers;
3) A diversion tunnel and diversion control structure;
4) Three miles of transmission lines, including poles and transformers;
5) A switchyard;
6) Two 10-foot-diameter and one 14-foot-diameter penstock pipes;
7) A 20-MW powerhouse with intake structure and associated equipment; and
8) An adjacent warehouse and two residences for powerhouse operators.

The proposed Project includes removal of all Copco No. 1 Complex features (i.e., all features listed above except the tunnels), with Copco No. 1 Dam removed to approximately 20 feet below the existing streambed level.

The following activities will be performed prior to Copco No. 1 Dam removal: local seed collection and invasive weed control; access road improvements; and creation of equipment staging areas. Additionally, the diversion tunnel will be equipped with new remote operated spillway gates capable of discharging 13,000 cfs.

The initial drawdown of Copco No. 1 Reservoir is proposed to begin on November 1, commencing the Project drawdown period. Drawdown will initially proceed at the rate of not more than two feet per day, which is within the range of drawdown observed under existing hydroelectric operations. The maximum drawdown rate of five feet per day at Copco No. 1 Reservoir will not be implemented prior to January 15. The maximum additional discharge associated with drawdown of Copco No. 1 Reservoir will not exceed 6,000 cfs. Drawdown of Copco No. 1 Reservoir is anticipated to be complete by March 15. Cofferdams will be constructed ~~upstream of Copco No. 1 Dam~~, as appropriate, to create dry work areas.

Approximately 104,000 cubic yards of bulk concrete, 1,000 tons of rail and steel, and 1,100 tons of mechanical and electrical equipment will be removed at the Copco No. 1 Complex. Inert debris such as concrete will be buried at a 3.5-acre disposal area located on the slope north of Copco No. 2 Reservoir (Attachment 2; Figure 4: Copco No. 1 and Copco No. 2 Disposal Site). The disposal area will be graded for drainage and hydroseeded to prevent erosion. Reinforced steel and other recyclable materials will be sent to local recycling facilities. Hazardous waste will be removed from the Project area and disposed per a Hazardous Materials Management Plan.

Copco No. 2 Complex: The Copco No. 2 Complex is located on the Klamath River between RM 201.8 and RM 200 in Siskiyou County, California. Primary components of the Copco No. 2 Complex include:

1) A 70-AF unnamed reservoir;

2) Copco No. 2 Dam[6], a 32-foot-tall concrete diversion dam with a gated spillway, basin apron, end sill, and a remnant cofferdam upstream of the concrete dam below the normal water surface elevation of the reservoir;
3) An approximately 15,000-square-foot earthen embankment section and a cutoff wall along the river right sidewall;
4) A water conveyance system consisting of 3,610 feet of concrete lined tunnels, a 1,333-foot-long wood-stave pipeline, underground surge tank, and two steel penstocks;
5) A 27-MW powerhouse;
6) Approximately 6.5 miles of transmission lines;
7) A control center building, maintenance building, and oil and gas storage building;
8) A switchyard;
9) Copco Village, a nearby village consisting of a cookhouse/bunkhouse, modern bunkhouse, garage/storage building, bungalow, three modular houses, four ranch-style houses, and a schoolhouse/community center; and
10) A 1.5-mile-long bypass reach in the Klamath River between Copco No. 2 Dam and Copco No. 2 Powerhouse, created by water diversions at Copco No. 2 Dam for hydropower generation at Copco No. 2 Powerhouse.

The proposed Project includes removal of all Copco No. 2 Complex features (i.e., all features listed above except the tunnels and the bypass reach), except for the switchyard, which will be partially removed. PacifiCorp plans to use the remaining portion of the switchyard for power transmission.

The following activities will be performed prior to removal of Copco No. 2 Complex: local seed collection and invasive weed control; and access road improvements; and creation of equipment staging areas.

Under the proposed Project, Copco No. 2 Reservoir drawdown is scheduled to begin in May (Attachment 1: KRRC's Proposed Project Schedule). Drawdown of Copco No. 2 is anticipated to take 24 hours, with a total Copco No. 2 reservoir surface elevation drawdown (drop) of five feet, from 2486.5 feet to 2481.5 feet. Due to the proximity of the two Copco reservoirs, drawdown of Copco No. 2 Reservoir will complete Copco No. 1 Reservoir drawdown. Following drawdown of Copco No. 2 Reservoir, temporary cofferdams will be constructed to assist in the removal of Copco No. 2 Dam spillway bays, powerhouse, and powerhouse water intake structures. A cofferdam[7] will permanently be left in place to facilitate restoration activities following removal of the Copco No. 2 Complex.

Copco No. 2 Dam removal will occur via blasting, hydraulic excavators, diamond–wire saw cutting, and drilling. Inert debris such as concrete will be buried at a 3.5-acre disposal area located on the slope north of Copco No. 2 Reservoir (Attachment 2; Figure 4: Copco No. 1 and Copco No. 2 Disposal Site). Inert debris associated with Copco No. 2~~1~~ powerhouse may be buried within the existing tailrace channel. Approximately 2,100 cubic yards of bulk earthen fill, 16,600 cubic yards of bulk concrete, 400 tons of reinforced steel, 2,200 tons of mechanical and

[6] Copco No. 2 Dam is located approximately 0.3 miles downstream of Copco No. 1 Dam.
[7] The cofferdam will be located in the tailrace of the Copco No. 2 Powerhouse, not in the Klamath River channel.

electrical equipment, 2,300 cubic yards of building waste, 700 tons of treated wood, and 6.5 miles of transmission line will be removed. Recyclable materials will be sorted and brought to local recycling centers. Hazardous waste will be removed from the Project area and disposed per a Hazardous Materials Management Plan.

Iron Gate Complex: The Iron Gate Complex is located on the Klamath River between RM 200 and RM 193.1 in Siskiyou County, California. Primary components of the Iron Gate Complex include:

1) Iron Gate Reservoir, a 50,941-AF reservoir;
2) Iron Gate Dam, a 189-foot-tall earthen dam with a central impervious clay core on basalt bedrock foundation;
3) A fish hatchery with a warehouse*, hatchery building*, four fish-rearing ponds*, visitor information center*, and four employee residences*;
4) A water supply pipeline and aerator for the hatchery;
5) A fish collection facility at Iron Gate Dam, including fish ladder and trapping and hauling facilities;
6) An ungated side-channel spillway capable of discharging approximately 26,200 cfs;
7) A reinforced concrete diversion tunnel capable of diverting approximately 2,700 cfs, and a footbridge to a gate control building;
8) A 45-foot-tall freestanding concrete penstock intake structure and its adjoining footbridge, and a 12-foot-diameter, welded steel penstock with concrete supports;
9) An 18-MW powerhouse;
10) A switchyard;
11) Approximately 0.5-mile of transmission lines; and
12) Several recreation facilities, including Fall Creek*, Jenny Creek*, Wanaka Springs, Camp Creek, Juniper Point, Mirror Cove, Overlook Point, Long Gulch, and other small, unnamed, dispersed shoreline recreation sites.

The proposed Project includes removal of all physical features listed above with the exception (in the areas noted above with an *) of the fish hatchery warehouse, hatchery building, four fish-rearing ponds, visitor information center, four employee residences, ~~and~~ two recreation facilities (Jenny Creek and Fall Creek) and diversion tunnel, which will be plugged. The KRRC proposes to make a later determination on whether or not to remove the Jenny Creek and Fall Creek recreation facilities. KRRC shall enter into an agreement with PacifiCorp and the State of California providing for: (1) the transfer of the hatchery to the State of California concurrent with license transfer or at some other agreeable time, and (2) modification of the hatchery and operations thereafter, subject to PacifiCorp's funding, all as provided in Klamath Hydroelectric Settlement Agreement ("KHSA") section 7.6.6.

The following activities will be performed prior to removal of the Iron Gate Complex: local seed collection and invasive weed control; access road improvements; and creation of equipment staging areas. Additionally, the diversion tunnel will be equipped with new remote operated ~~spillway~~ gates capable of discharging 16,000 cfs.

Iron Gate Reservoir drawdown is proposed to begin on January 1 of the drawdown period. To ensure dam embankment stability, reservoir drawdown will be limited to a maximum of five feet

per day and the reservoir's water will be released from the modified diversion tunnel. The maximum additional discharge associated with drawdown of Iron Gate Dam will be approximately 6,000 cfs. During dam removal, operators will maintain adequate water storage capacity to accommodate inflows from probable high flow events. Iron Gate Reservoir drawdown is anticipated to be complete by March 15. Iron Gate Dam removal will follow the receding reservoir and is expected to be completed by September.

Iron Gate Complex removal will occur via earth-moving equipment, drilling, and blasting. Cofferdams will be used as needed to keep work areas dry and assist with Iron Gate Complex removal. Cofferdam breaches at Iron Gate and J.C. Boyle Complexes will be coordinated to reduce downstream impacts. The spillway structure will be buried in place with approximately 300,000 cubic yards of backfill to mimic the pre-dam appearance of the area.

The majority of earthen material and all the concrete rubble generated from Iron Gate Complex removal will be buried on-site in a 36-acre disposal site located on PacifiCorp property, approximately one mile south of Iron Gate Dam (Attachment 2; Figure 5: Iron Gate Disposal Site). Estimated quantities of materials associated with Iron Gate Complex removal include approximately 1,257,000 cubic yards of bulk earthen material, 20,700 cubic yards of bulk concrete, 700 tons of rebar, 1,200 tons of mechanical and electrical equipment, 600 cubic yards of bulk building waste, and approximately 0.5 miles of transmission lines. The disposal area will be covered with top soil, graded to conform with existing topography, and seeded to prevent erosion. Hazardous waste will be removed from the Project area and disposed per a Hazardous Materials Management Plan.

City of Yreka Water Supply Line: The primary water intake for Yreka's water supply line is located on Fall Creek, downstream of PacifiCorp's Fall Creek hydroelectric facility. The intake diverts raw water to a pump station along Fall Creek. From the pump station, the water supply line crosses the Klamath River near the upstream end of Iron Gate Reservoir to supply the City of Yreka with 10 cfs of raw water. To prevent potential water supply interruptions associated with Project implementation, prior to drawdown activities the KRRC will replace the portions of Yreka's Fall Creek Water Supply Line that cross the Klamath River, as described in the January 3, 2018, update to the Administrative Draft of the Definite Plan for Decommissioning. In addition, the proposed Project includes evaluation of the fish screens at the water supply intakes, and modifications or replacements as needed, to ensure they meet applicable fish screen requirements.

Hatchery Modifications: Prior to initiating Project drawdown activities, the proposed Project includes modifications to Iron Gate Hatchery and reconstruction of the Fall Creek Hatchery to allow for continued salmonid hatchery production by the State of California during, and for eight years following, removal of the four dams. Hatchery operations by the State of California will be managed by a Hatchery Operations Management Plan.

Iron Gate Hatchery will be modified to create a new water supply line from Bogus Creek and the auxiliary trap and ladder system currently in place will be used for fish collection to produce

Chinook smolts and incubate coho eggs[8]. Modifications to Iron Gate Hatchery will occur within the existing footprint, with the exception of the new water supply line from Bogus Creek.

Fall Creek Hatchery, which has not been used since 2003, will be reconstructed to produce Chinook smolts, Chinook yearlings, and coho yearlings. The reconstructed Fall Creek Hatchery will use Fall Creek as a water supply to support salmonid production.

Project Measures: In addition to removal of the four dams and associated facilities, Yreka water supply line replacement, and hatchery modifications, the KRRC has included Project measures and plans to reduce impacts to local communities and environmental resources. Project measures and plans include:

- Aquatic Resource Measures for mainstem spawning salmonids, out-migrating juveniles, Iron Gate Hatchery fish, listed sucker species located in Copco No. 1 and Iron Gate reservoirs, and freshwater mussels;
- Reservoir Restoration Measures to manage remaining sediment and restore the Klamath River within the reservoir footprints. These measures also address the potential for discovery of cultural resources and human remains;
- Terrestrial Resource Measures for habitat restoration, nesting birds, Bald and golden eagles, special-status bats, northern spotted owls, special-status plants, and wetlands;
- Road improvements for construction access, ongoing and post-Project maintenance, and long-term road infrastructure;
- Traffic Management;
- Water Quality Monitoring and Adaptive Management;
- Groundwater Well Management;
- Fire Management;
- Hazardous Materials Management;
- Emergency Response; and
- Noise and Vibration Control.

3.0 REGULATORY AUTHORITY

The State Water Board is issuing a certification for the water quality impacts of the Project in California. The water quality impacts of the Project in Oregon are addressed by the Oregon Department of Environmental Quality (ODEQ), Oregon's state agency with Clean Water Act section 401 authority. (See ODEQ's May 2018 Draft Water Quality Certification[9].

Water Quality Certification and Related Authorities

The federal Clean Water Act (33 U.S.C. §§ 1251-1387) was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1251(a).) Section 101 of the Clean Water Act (33 U.S.C. § 1251 (g)) requires federal agencies to "co-

[8] Coho salmon eggs and fry will be hatched and reared at FCH, IGH, or a portion at each facility. For those hatched at IGH, Coho eggs will be hatched and reared until they reach a size of approximately 300 fish per pound at Iron Gate Hatchery and then will be transported to Fall Creek Hatchery for rearing until release.
[9] http://www.oregon.gov/deq/FilterDocs/401klamathcertification.pdf, last accessed June 4, 2018

operate with the State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources."

Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit, which may result in a discharge into navigable waters, to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the Clean Water Act, including water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act (33 U.S.C. § 1313). Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law set forth in the certification. Certifications should also comply with the water quality standards of downstream states, including tribes with treatment-in-the-same-manner-as-a-state status under the Clean Water Act. (33 U.S.C. §§ 1341(a)(2), 1377(e).) Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The State Water Board's Executive Director has been delegated the authority to issue a decision on a certification application. (Cal. Code Regs., tit. 23, § 3838, subd. (a).)

On October 21, 2016, the State Water Board provided notice of receipt of a complete application for certification to the applicable parties pursuant to California Code of Regulations, title 23, section 3835, subdivision (c). The State Water Board provided public notice of the certification application pursuant to California Code of Regulations, title 23, section 3858 by posting information describing the Project on the State Water Board's website on December 22, 2016. No comments were received regarding the public notice for the certification application.[10]

Water Quality Control Plans and Related Authorities

The California Regional Water Quality Control Boards (Regional Water Boards) have primary responsibility for the formulation and adoption of water quality control plans for their respective regions, subject to the State Water Board and United States Environmental Protection Agency (USEPA) approval, as appropriate. (Wat. Code, § 13240 et seq.) The State Water Board may also adopt water quality control plans, which will supersede regional water quality control plans for the same waters to the extent of any conflict. (Wat. Code, § 13170.) For a specified area, the water quality control plans designate the beneficial uses of water to be protected, the water quality objectives established for the reasonable protection of those beneficial uses or the prevention of nuisance, and a program of implementation to achieve the water quality objectives. (Wat. Code, §§ 13241, 13050 subd. (h), and 13050 subd. (h), and 13050 subd. (j).) The beneficial uses together with the water quality objectives that are contained in the water quality control plans, in addition to state and federal anti-degradation requirements, constitute California's water quality standards. Additionally, USEPA designates specific tribes to be treated in the same manner as states under the Clean Water Act. In the Klamath Basin, the

[10] Additionally, the State Water Board is the lead agency for preparation of an environmental impact report for the proposed Project, and has solicited and received extensive public comment through that process. (See Scoping Report with Appendices A, B, C, and D.) These comments have informed the draft certification, and will inform the California Environmental Quality Act analysis.

Hoopa Valley Tribe has received such status, and has adopted a water quality control plan, as well.

North Coast Basin Plan

The North Coast Water Quality Control Board (North Coast Regional Board) has adopted, and the State Water Board and the USEPA have approved, the Water Quality Control Plan for the North Coast Region (North Coast Basin Plan). The North Coast Basin Plan designates the beneficial uses of water to be protected along with the water quality objectives necessary to protect those uses.

The North Coast Basin Plan identifies beneficial uses[11] in the Klamath River Basin as: municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; groundwater recharge; freshwater replenishment; navigation; hydropower generation; water contact recreation; non-water contact recreation; commercial and sport fishing; warm freshwater habitat; cold freshwater habitat; wildlife habitat; rare, threatened, or endangered species; marine habitat, migration of aquatic organisms; spawning, reproduction, and/or early development; shellfish harvesting; estuarine habitat; aquaculture; and Native American culture. The North Coast Basin Plan sets forth narrative and numeric objectives to protect these beneficial uses.

The North Coast Basin Plan includes a "Policy in Support of Restoration in the North Coast Region" that allows for certification of restoration projects 'that result in significant and sometimes unavoidable impacts (including temporary exceedances of water quality objectives) if it is shown that the project will result in long-term protection of beneficial uses and water quality."

State Water Board staff provided portions of the draft certification that have the potential to cause adverse water quality impacts to the North Coast Regional Board in April and May 2018. (California Code of Regulations title 23, section 3855 subdivision (b)(2)(B)). North Coast Regional Board staff responded with comments, which have been incorporated into this document.

Hoopa Reservation Plan

The Hoopa Valley Tribe has adopted the Water Quality Control Plan, Hoopa Valley Indian Reservation (Hoopa Reservation Plan)[12]. The northernmost end of the Hoopa Valley Indian Reservation includes part of the Klamath River just upstream of the confluence with the Trinity River. The Hoopa Reservation Plan establishes the following beneficial uses for all waterways on the Hoopa Valley Indian Reservation: scenic; fisheries; wildlife; fisheries; and fishing rights. Additionally, specific to the Klamath River, the Hoopa Reservation Plan designates potential beneficial uses as: municipal and domestic supply; agricultural supply; industrial service supply; and industrial process supply. The Hoopa Reservation Plan designates existing beneficial uses

[11] This overview includes all beneficial uses in the Klamath River Basin: a specific use may not apply to all reaches in the Klamath River Basin, and may be either an existing or potential use in any specific reach. For further detail, see Table 2-1 of the North Coast Basin Plan.

[12] The Hoopa Reservation Plan is available online at: https://www.epa.gov/sites/production/files/2014-12/documents/hoopa-valley-tribe.pdf (last accessed June 4, 2018).

for the Klamath River as: groundwater recharge; cold freshwater habitat; and water-contact recreation. (See Hoopa Reservation Plan, Table 2.1.) The Hoopa Reservation Plan also describes the intent to support spawning habitat as a use on the Klamath River. The Hoopa Reservation Plan sets forth numeric and narrative objectives to protect these beneficial uses.

List of Impaired Water Bodies

The State Water Board has listed the Klamath River on the Clean Water Act Section 303(d) list. The Klamath River and waterbodies associated with the Project are listed in California's 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List / 505(b) Report) (2014/2016 Integrated Report[13]) as follows:

- The Klamath River from the Oregon border to the Pacific Ocean is listed for nutrients, organic enrichment/low dissolved oxygen, and temperature.
- Iron Gate and Copco No. 1 reservoirs are listed for mercury and for a liver toxin produced by blue-green algae, called microcystin.
- The Klamath River from Copco No. 1 Reservoir to the Trinity River is listed for microcystin.
- The Klamath River from the Trinity River to the Pacific Ocean is listed for sediment.
- The Klamath River from Iron Gate Dam to the Scott River is listed for aluminum.

Delegation of Authorities

In this certification, actions that could be taken by the State Water Board may also be taken by the State Water Board designee. Water Code section 13383 provides the State Water Board with the authority to "establish monitoring, inspection, entry, reporting and recordkeeping requirements... and [require] other information as may reasonably be required" for activities subject to water quality certification under section 401 of the Clean Water Act that involve the diversion of water for beneficial use. The State Water Board delegated this authority to the Deputy Director of the Division of Water Rights (Deputy Director), as provided for in State Water Board Resolution No. 2012-0029. In the Redelegation of Authorities Pursuant to Resolution No. 2012-0029 memo issued by the Deputy Director on October 19, 2017, this authority is redelegated to the Assistant Deputy Directors of the Division of Water Rights.

Construction General Permit

The General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Quality Order No. 2009¬ 0009-DWQ and NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ and 2012-0006-DWQ), applies to dischargers whose projects disturb one or more acres of soil or are part of a larger common plan of development that totals more than one acre. The Construction General Permit sets forth detailed best management practices to protect water quality from stormwater discharges associated with land disturbance.

[13] The 2014/2016 Integrated Report is available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml (last accessed June 4, 2018).

Aquatic Weed Control Permit

The Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (Aquatic Weed Control Permit; State Water Board Order No. 2013-0002-DWQ and NPDES No. CAG990005, as amended by State Water Board Order No. 2014-0078-DWQ), applies to projects that require aquatic weed management activities. The Aquatic Weed Control Permit sets forth detailed management practices to protect water quality from pesticide and herbicide use associated with aquatic weed control.

Onsite Wastewater Treatment Systems Policy

The *Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy; State Water Board Resolution No. 2012-0032, as amended by State Water Board Resolution No. 2018-0019) establishes a statewide, risk-based, tiered approach for the regulation and management of onsite wastewater treatment system installation and replacement, and sets the level of performance and protection expected from onsite wastewater treatment systems.

Thermal Plan

The *Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and the Enclosed Bays and Estuaries of California* (Thermal Plan), establishes water quality objectives for temperature in certain waters in California, including the Klamath River.

Water Quality Control Policy for the Enclosed Bays and Estuaries of California

The *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* establishes statewide policies for discharges to enclosed bays and estuaries, including the Klamath Estuary. (See State Water Board Resolutions 74-43 and 95-84.) It establishes management policies, water quality requirements, and discharge prohibitions for discharges affecting enclosed bays and estuarine waters, including silt discharges.

California Environmental Quality Act

The State Water Board is the lead agency for purposes of California Environmental Quality Act (CEQA) compliance. The State Water Board issued a Notice of Preparation (NOP) for the Project on December 22, 2016. The NOP comment period began on December 22, 2016, and ended on February 1, 2017. During the NOP comment period, the State Water Board hosted three public scoping meetings to facilitate public input. Public scoping meetings were held in the cities of Arcata (January 12, 2017), Sacramento (January 20, 2017), and Yreka (January 26, 2017). More than 300 organizations and individuals provided approximately 1,300 comments.

These comments have informed the development of this draft water quality certification. Additionally, the State Water Board is currently considering all comments received, previous environmental documents, and additional information to develop a draft environmental impact report (EIR) that will be released for public review and comment. The State Water Board

anticipates that comments on this draft certification will further inform the environmental review.

Prior to drafting final conditions for certification and taking a final action on the KRRC's Project certification application, the State Water Board will consider public comments, issue and certify a final EIR, and make relevant CEQA findings.

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE STATE WATER RESOURCES CONTROL BOARD CERTIFIES THAT THE LOWER KLAMATH PROJECT will comply with sections 301, 302, 303, 306, and 307 of the Clean Water Act, and with applicable requirements of State law under the following terms and conditions.

CONDITION 1. WATER QUALITY MONITORING AND ADAPTIVE MANAGEMENT

The Klamath River Renewal Corporation (Licensee) shall submit the Water Quality Monitoring Plan (WQMP) for review and approval by the Deputy Director for the Division of Water Rights (Deputy Director) no later than six months following issuance of a Federal Energy Regulatory Commission (FERC) license surrender order and prior to Lower Klamath Project (Project) implementation. The WQMP shall be developed in consultation with staff from the State Water Resources Control Board (State Water Board), North Coast Regional Water Quality Control Board (North Coast Regional Board), Oregon Department of Environmental Quality (ODEQ), and California Department of Fish and Wildlife (CDFW). The Licensee shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved WQMP, together with any required plan modifications, with FERC. The Licensee shall implement the WQMP upon Deputy Director and any other required approvals. Any changes to WQMP shall be approved by the Deputy Director prior to implementation. Upon receiving all necessary approvals, the Licensee shall implement the WQMP for the duration of the license surrender order or until otherwise approved by the Deputy Director. The Deputy Director may require modifications to the WQMP, including implementation of additional adaptive management measures informed by monitoring results, as part of review and approval of reports as specified below.

At a minimum, the WQMP shall include: (1) a monitoring program to assesses Project impacts to water quality; (2) a reporting schedule; (3) adaptive management measures based on water quality monitoring results; and (4) provisions for collection and submittal of water quality data to inform the Licensee's implementation of Compliance Schedule (Condition 2). Additionally, the WQMP shall describe: field sampling and analytical methods; monitoring locations; types of sampling (e.g., continuous, grab, etc.) and frequency by the category (as enumerated below); pre-drawdown monitoring; quality assurance/quality control (QA/QC); sediment load quantification; reporting and adaptive management; and other Project-related monitoring.

Field Sampling and Analytical Methods: The Licensee shall implement field sampling and monitoring methods consistent with the State of California's Surface Water Ambient Monitoring Program or equivalent methods approved by the Deputy Director. The Licensee shall use analytical methods that comply with Code of Federal Regulations, title 40, part 136, or methods approved by California's Environmental Laboratory Accreditation Program (ELAP). Samples that require laboratory analysis shall be analyzed by ELAP-certified laboratories.

Types of Sampling and Frequency by Category: At a minimum, the WQMP shall identify the parameters and sampling frequency[21] for the three categories of sampling outlined below. Water quality monitoring shall be implemented at the noted frequency or more often.

Category 1: Continuous Water Quality Monitoring
The Licensee shall continuously (hourly readings averaged based on 15-minute interval recordings) monitor the following water quality parameters:

(1) dissolved oxygen (DO) in milligrams per liter (mg/L) and percent saturation;
(2) water temperature;
(3) turbidity;
(4) conductivity; and
~~(5) chlorophyll-a; and~~
~~(6)~~ (5) pH.

Frequency: At a minimum, hourly readings (averaged based on 15-minute interval recordings).

Category 2: Water Quality Grab Samples
The Licensee shall collect and analyze water quality grab samples for the following parameters:

(1) total nitrogen;
(2) total phosphorus;
(3) organic phosphorus;
(4) particulate organic carbon;
(5) dissolved organic carbon;
(6) nitrate;
(7) nitrite;
(8) ammonia;
(9) orthophosphate;
(10) turbidity;
(11) microcystin cell count ~~toxicity~~ (beginning May 1 following drawdown activities and continuing annually thereafter from May 1 through October 31);
(12) suspended sediment concentrations;
(13) methylmercury (Klamath River monitoring locations below Copco No. 1);
(14) settleable solids; ~~and~~
(15) total and dissolved aluminum (Klamath River monitoring locations below Iron Gate); and

(16) chlorophyll-a.

Frequency: Monthly, for all constituents. For SSC, increase frequency to weekly during drawdown and subsequent wintertime high flow periods ~~prior to drawdown and during low flow periods following drawdown. Increase frequency to a minimum of every two weeks during drawdown and subsequent high flow periods~~, at approximately the same time of day, during and following drawdown.

[21] See pre-drawdown monitoring below for minimum monitoring frequency prior to drawdown.

Category 3: Klamath Riverbed Sediment Grab Samples
The Licensee shall collect and analyze sediment samples from the Klamath Riverbed prior to and following dam decommissioning. At a minimum, sediment samples shall be analyzed for the following parameters:

(1) arsenic;
(2) lead;
(3) copper;
(4) nickel;
(5) aluminum;
(6) dioxin;
(7) cyanide;
(8) polychlorinated biphenyls (PCBs);
(9) Dichlorodiphenyltrichloroethane (DDT); and
(10) Dichlorodiphenyldichloroethane (DDE).

Frequency: One monitoring event prior to drawdown activities[22] and one event within three to six months of completing drawdown activities.

Monitoring Locations: The Licensee shall consider the following when selecting monitoring locations: existing water quality monitoring stations in the Klamath River Basin, site access, land use, and input received during consultation. Whenever feasible, the Licensee shall select monitoring locations at or near existing water quality monitoring locations. At a minimum, the Licensee shall monitor at the following locations:

Continuous Water Quality Monitoring (Category 1) and Water Quality Grab Samples[23] (Category 2) shall be conducted at the following locations:

- Klamath River at or near United State Geological Survey (USGS) gage No. 11509500 (below Keno)
- Klamath River at or near USGS gage No. 11510700 (below J.C. Boyle)
- ~~California/Oregon Stateline;~~
- Klamath River upstream of Copco No. 1 Reservoir, and downstream of Shovel Creek (for suspended sediment grab samples and Category 1 monitoring only);
- Klamath River downstream of Copco No. 2 Powerhouse, no further downstream than the Daggett Road bridge crossing of the Klamath River (for suspended sediment grab samples and Category 1 monitoring only);
- ~~Jenny Creek within 1,000 feet upstream of Iron Gate Reservoir's footprint (for suspended sediment grab samples and continuous turbidity monitoring only)~~;
- Klamath River at or near USGS gage No. 11516530 (below Iron Gate);
- Klamath River at or near USGS gage No. 11520500 (below Seiad Valley);
- Klamath River at or near USGS gage No. 11523000 (Orleans); and

[22] In lieu of collecting additional pre-drawdown [in-reservoir] samples, the Licensee may rely on the results of previously-analyzed sediment samples, to the extent they provide the necessary information.
[23] Samples shall be collected at the same location, or as close as possible, each time.

- ~~Trinity River at or near USGS gage No. 1153000 (for suspended sediment grab samples and continuous turbidity monitoring only);~~
- Klamath River at or near USGS gage No. 11530500 (Klamath); ~~and~~
- ~~Klamath River Estuary~~.

Klamath Riverbed Sediment Grab Samples (Category 3) shall be collected at the following locations[24]:

- Klamath River upstream of Copco No. 1 Reservoir and downstream of Shovel Creek;
- Three locations in the Copco No. 1 Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
- Klamath River downstream of Copco No. 2 Powerhouse, no further downstream than the Daggett Road bridge crossing of the Klamath River;
- Three locations in the Iron Gate Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
- Klamath River at or near USGS gage No. 11516530 (below Iron Gate);
- Klamath River at or near USGS gage No. 11523000 (Orleans); and
- Klamath River at or near USGS gage no 1153500 (Klamath) ~~Estuary~~.

Pre-Drawdown Monitoring: At a minimum, prior to drawdown activities the Licensee shall monitor as follows:

- Category 1 (Continuous Water Quality Monitoring): One year of continuous monitoring at all Category 1 monitoring locations.
- Category 2 (Water Quality Grab Samples): One year with samples collected monthly, at all Category 2 monitoring locations.
- Category 3 (Klamath Riverbed Sediment Grab Samples): One collection event at all Category 3 monitoring locations, except as specified in Footnote 15.

QA/QC: The Licensee shall outline the QA/QC measures in the WQMP that will be implemented as part of the Project's monitoring program. Equipment shall be maintained per manufacturer's recommendations unless alternative standards are approved as part of the WQMP.

Sediment Load Quantification: At 12 months and 24 months following completion of drawdown activities, the Licensee shall submit a report to the Deputy Director that quantifies: (a) the amount of sediment present in each Project reservoir footprint; (b) the total amount of sediment exported from the Project reservoirs; and (c) the amount of sediment that has settled in the Klamath River between Iron Gate Dam and Cottonwood Creek (River Mile [RM] 185). For (a) and (b) estimates shall be provided in million cubic yards, tons (dry weight), and percentage of sediment present compared to total amount of sediment present prior to drawdown. For (c) estimated sediment deposition shall be presented as total estimated quantities in million cubic

[24] Samples shall be collected at the same location, or as close as possible, each time.

yards, tons (dry weight), average depth change from pre-drawdown conditions, and average particle size.

Reporting and Adaptive Management: Prior to, during, and for a minimum of one year following completion of drawdown the Licensee shall provide monthly monitoring reports to the State Water Board, ODEQ, and North Coast Regional Board. Monitoring and monthly reporting shall continue until otherwise approved by the Deputy Director. The monthly report shall, at a minimum: summarize the results of the month's monitoring; highlight any exceedances of water quality objectives; highlight observed trends; request any changes to the WQMP; and propose any adaptive management measures to address exceedances. Any proposal to modify, reduce, or discontinue monitoring shall be included in the reports with a request for Deputy Director approval and must include information to support the request, such as statistically valid findings that dam removal actions are no longer impacting water quality. Such requests must also comply with Tribal Water Quality Standards (Condition 20). Modifications to the WQMP or adaptive management measures requested by the Licensee require Deputy Director approval prior to implementation.

At 12 months and 24 months following the completion of drawdown activities, the Licensee shall submit the estimates required by the Sediment Load Quantification Section above.

Based on monitoring results, the Deputy Director may require the Licensee to modify monitoring parameters, frequency, methods, duration, constituents, reporting, or other elements of the WQMP, or to implement additional adaptive management measures. The Licensee shall implement changes upon receiving Deputy Director and any other required approvals. The Licensee shall file the Deputy Director-approved updates to the WQMP with FERC. The Licensee may integrate the reporting in this condition with other reporting requirements outlined in this water quality certification (certification).

Other Project-Related Monitoring: The WQMP shall identify other monitoring efforts the Licensee plans to conduct under other plans or aspects of the Project, which includes, but is not limited to monitoring under the following conditions: City of Yreka Water Supply (Condition 7); Construction: General Permit Compliance, and Water Quality Monitoring and Protection Plans (Condition 9); Hatcheries (Condition 12); and Recreation Facilities (Condition 17).

CONDITION 2. COMPLIANCE SCHEDULE

Project activities related to drawdown and the export of reservoir sediments into the Klamath River are anticipated to result in temporary exceedances of water quality objectives related to sediment. Temporary exceedance of a water quality objective is permissible for restoration projects with long-term benefits to water quality and beneficial uses. Pursuant to this certification, discharges to the Klamath River that exceed sediment-related water quality objectives can temporarily occur during and following reservoir drawdown, dam removal, and associated sediment flushing activities. The Licensee shall demonstrate that, in the long term, these Project activities attain all sediment-related water quality objectives listed in the *Water Quality Control Plan for the North Coast Region* (North Coast Basin Plan) as outlined in this condition. Implementation of this condition shall also serve to demonstrate compliance with North Coast Basin Plan prohibitions.

The Licensee shall monitor water quality consistent with Water Quality Monitoring and Adaptive Management (Condition 1) to assess attainment of water quality objectives listed in the North Coast Basin Plan. Within 36 months of beginning drawdown, unless otherwise approved by the Deputy Director, the Licensee shall submit a report that documents: 1) Project attainment of sediment-related water quality objectives over a range of flows, including high winter flows and low summer flows; and 2) post-dam removal Klamath River water quality conditions following attenuation of impacts associated with drawdown and establishment of new riverine conditions.

The Licensee shall document changes in water quality following drawdown and assess trends in water quality parameters. The Licensee's report shall evaluate the Project's effects on all California portions of the Klamath River (i.e., from California/Oregon Stateline to Klamath Estuary) and Klamath River tributaries, including attainment of: (i) numeric water quality objectives outlined in Table 1; and (ii) narrative water quality objectives in the North Coast Basin Plan. Outlier exceedances that are localized or isolated may be accepted if the Project is consistently in attainment with water quality standards. Localized or isolated exceedances may be addressed through adaptive management associated with Restoration (Condition 13) or other measures proposed by the Licensee. If a water quality objective is exceeded and the Licensee believes the exceedance it is not a result of Project activities, the Licensee shall provide information and rationale demonstrating that the exceedance is not related to Project activities. The Deputy Director will consider the Licensee's rationale in evaluating the Licensee's attainment of water quality objectives.

Table 1: Minimum Parameters to Demonstrate Attainment of Numeric Water Quality Objectives

Parameter	**Water Quality Objective***
Turbidity	Turbidity shall not be increased more than 20% above naturally occurring background levels.
pH	pH shall be between 7.0 (minimum) and 8.5 (maximum). Changes in normal ambient pH levels shall not exceed 0.2 units in waters designated marine or saline beneficial uses nor 0.5 units within the range specified above in fresh waters with designated COLD** or WARM***.
Dissolved Oxygen (percent saturation)	Stateline to the Scott River: • October 1 to March 31: 90% • April 1 to September 30: 85% Scott River to Hoopa: • All year: 90% saturation Downstream of Hoopa to Turwar: • June 1 to August 31: 85% • September 1 to May 31: 90% Upper and Middle Estuary: • September 1 to October 31: 85% • November 1 to May 31: 90% • June 1 to July 31: 85% • August 1 through August 31: 80%

Temperature	Elevated temperature waste discharges into COLD** interstate waters are prohibited. Thermal waste discharges having a maximum temperature greater than 5°Fahrenheit above natural receiving water temperature are prohibited. At no time or place shall the temperature of WARM*** intrastate

Table 1: Minimum Parameters to Demonstrate Attainment of Numeric Water Quality Objectives

Parameter	**Water Quality Objective***
	water be increased more than 5°Fahrenheit above natural receiving water temperature.
Specific Conductance	Klamath River above Iron Gate Dam and including Iron Gate and Copco Reservoirs: • 275 micromhos (50% upper limit)****; and • 425 micromhos (90% upper limit)***** Middle Klamath River below Iron Gate Dam: • 275 micromhos (50% upper limit); and • 350 micromhos (90% upper limit) Lower Klamath River: • 200 micromhos (50% upper limit); and • 300 micromhos (90% upper limit)

* Naturally occurring background levels, for the purpose of numeric water quality objectives in Table 1, are defined as the post-dam-removal condition of the Klamath River with successful implementation of revegetation and bank stabilization. It does not include discharges from construction or restoration activities, including failures of vegetation and/or bank stabilization. ** COLD is defined as Cold Freshwater Habitat, uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
*** WARM is defined as Warm Freshwater Habitat, uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
**** 50% upper and lower limits represent the 50 percentile values of the monthly means for the calendar year. 50% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.
***** 90% upper and lower limits represent the 90 percentile values of the monthly means for the calendar year. 90% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.

At 32 months following the beginning of drawdown, the Licensee shall submit an assessment of whether Project activities are anticipated to result in exceedance of a water quality objective(s) beyond 36 months following the beginning of Project drawdown. The assessment shall be submitted to the Deputy Director and the Executive Officer of the North Coast Regional Water Board (Executive Officer), and consistent with Tribal Water Quality Standards (Condition 20). If the assessment indicates a high risk of continued exceedance beyond this timeline, the Licensee shall immediately commence consultation with staff from the State Water Board and North Coast Regional Board regarding the development of a report and compliance proposal for actions to address the anticipated exceedance(s). The report and proposal shall be submitted to

the Deputy Director no later than 35 months following the beginning of Project drawdown activities and shall at a minimum include:

- A summary of which water quality objective(s) and compliance location(s) continue to exceed a water quality objective(s);
- An explanation of why the water quality objective(s) continues to be exceeded in relation to Project activities;
- A description of Licensee actions taken to date to address the exceedance(s); and
- A proposal to address the water quality objective(s) exceedance and associated timeline for attainment of compliance with the water quality objective(s).

The compliance report, if needed, shall be submitted to the Deputy Director for review and approval no later than 35 months following the beginning of drawdown. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the compliance plan upon receiving Deputy Director and any other required approvals. Any changes to the compliance plan shall be approved by the Deputy Director prior to implementation.

If the Licensee is unable to demonstrate attainment of water quality objectives within 36 months of beginning Project drawdown activities, the Licensee shall notify the Deputy Director and immediately begin implementation of the approved compliance proposal, or the approved portions of the proposal if the entire proposal has not yet been approved.

CONDITION 3. RESERVOIR DRAWDOWN

No later than six months following issuance of the FERC license surrender order, the Licensee shall prepare and submit a Reservoir Drawdown and Diversion Plan (Drawdown Plan) to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the Drawdown Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Drawdown Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Drawdown Plan shall include:

(1) The material elements of the drawdown plan presented in Section 4 of the Licensee's ~~January 3, 2018, update to the Administrative Draft of the~~ Definite Plan for the Lower Klamath Project~~Decommissioning~~, and any subsequent updates thereto. If the Licensee proposes to change any elements material to water quality, the Drawdown Plan shall highlight such changes and provide a rationale, including any new information relied on;
(2) A description of the reservoir drawdown facilities;
(3) An updated flood frequency analysis and associated average flows;
(4) Anticipated drawdown rates for each reservoir. The drawdown rate for each reservoir shall be determined using best available science and consider any potential slope instability issues;

(5) Drawdown scenarios for different water years (e.g., wet, dry, etc.);
(6) Construction schedule, including anticipated schedule for drawdown, and each reservoir's anticipated drawdown start and end dates;
(7) Anticipated total (drawdown and inflow) and drawdown only discharge rates (cubic feet per second [cfs]) associated with each structure (e.g., spillways, diversion tunnels, outlets, etc.);
(8) Public notice of Project schedule and potential impacts, including but not limited to closure of reservoirs, recreation facilities, and impacts to water quality;
(9) Surface water elevation at which each reservoir is considered drawn down;
(10) A detailed description of all structures related to reservoir operations that are proposed to be removed during drawdown;
(11) Compliance with cofferdam requirements in this condition, and a detailed description of cofferdams that will be installed as part of drawdown that includes locations, timing and duration of installations, and other information related to how the breach of cofferdams will be coordinated to limit impacts;
(12) A detailed description of operations required to maintain Copco No. 1 reservoir level at the gated spillway crest elevation on Copco No. 1 Dam (2,597.0 feet) between the conclusion of the first phase and initiation of the second phase of Copco No. 1 drawdown.
(13) Detail on how long Project powerhouses are anticipated to be operational during drawdown; and
(14) An overview of the sequence of drawdown activities for all four reservoirs, including a detailed sequence of how drawdown activities will be implemented at each reservoir.

Cofferdams: Construction areas in active streams shall use cofferdams or equivalent barriers to isolate construction areas from instream flows. Instream water shall be routed around the isolated construction area either by pipe or by isolating the stream in phases so that construction does not impede stream flow around the construction area. In addition, all dewatering pump intakes shall be screened to avoid potential for entrainment and all bypass routes (e.g., pipelines, outlets, etc.) shall be properly sealed upon completion of Project activities to prevent human and wildlife access to these areas, unless otherwise managed for other resources (e.g., bat habitat).

The Licensee shall notify the Deputy Director, in writing, within 24 hours of initiation and conclusion of drawdown activities at each reservoir. If reservoir drawdown has the potential to be delayed or extended while still meeting the requirements outlined in this certification, the Licensee shall notify the Deputy Director within 72 hours. The notification shall include the reason for the delay or extension and a proposed revised drawdown schedule that complies with this condition. The Deputy Director may require modifications to the proposed revised drawdown schedule. Development of a proposed revised drawdown schedule shall include consultation with State Water Board staff.

Drawdown of the reservoirs shall occur over no more than a single five-month period between November 1 (earliest date to start drawdown) and March 15 of the following year (latest date to conclude drawdown), and shall occur as more specifically outlined below:

- Copco No. 1 drawdown is divided into two timeframes based on the rate of drawdown[25] allowed at specific reservoir elevations.

    - The first phase of Copco No. 1 drawdown, from its normal operating reservoir elevation (2,609.5 feet) to gated spillway (crest elevation 2,597.0 feet), shall start no sooner than November 1 and no later than December 15. The maximum drawdown rate during the initial drawdown of Copco No. 1 is two feet per day. The initial phase of Copco No. 1 drawdown shall be concluded no later than January 1.

    - The second phase of Copco No. 1 drawdown, from the gated spillway until empty, shall not start until at least two weeks after Iron Gate drawdown begins and shall start no later than February 15 of the year directly following the initial drawdown of Copco No. 1. Copco No. 1 drawdown shall conclude no later than March 15 of the year in which the second phase of Copco No. 1 drawdown is initiated. The maximum drawdown rate for the second phase of Copco No. 1 drawdown shall be five feet per day.

The maximum additional discharge below Copco No. 1 Dam associated with Copco No. 1 drawdown shall be limited to 6,000 cfs, unless otherwise approved by the Deputy Director based on new information provided in the Drawdown Plan. ~~If initial drawdown of Copco No. 1 reservoir has not started by December 15, drawdown activities shall be delayed until at least November 1 of the following calendar year.~~

- Iron Gate drawdown shall start no sooner than January 1 of the year directly following the initiation of Copco No. 1 drawdown and no later than January 15 of the same year. Iron Gate drawdown shall conclude no later than March 15 of the same year Iron Gate drawdown is initiated. The maximum drawdown rate for Iron Gate drawdown shall be five feet per day. The maximum additional discharge below Iron Gate Dam associated with Iron Gate drawdown activities shall be limited to 6,000 cfs, unless otherwise approved by the Deputy Director based on new information provided in the Drawdown Plan.

- J.C. Boyle drawdown shall start no sooner than January 1 and no later than February 1 of the year directly following the initiation of Copco No. 1 drawdown. J.C. Boyle drawdown shall conclude no later than March 15 of the same year in which J.C. Boyle drawdown is initiated.

- Copco No. 2 drawdown shall start ~~conclude~~ no later than ~~March~~ May 15 of the year following initiation of Copco No. 1 drawdown.

Removal of the Project dams shall begin and be completed, to the extent feasible, after ~~during~~ drawdown during low flow conditions to minimize the duration of sediment releases, and to

[25] 18 For purposes of this certification, the actual drawdown rates may be less than what is described in the Drawdown Plan, and may even be negative during storm events due to increased inflow to the reservoirs. The drawdown rates shall be sufficient to end drawdown by March 15 of the year directly following the initiation of Copco No. 1 drawdown.

comply with the schedule set forth in the Compliance Schedule (Condition 2) of this certification. Additionally, drawdown and dam deconstruction shall be conducted so as not to interfere with instream flow requirements[26] below Iron Gate Dam.

CONDITION 4. ANADROMOUS FISH PRESENCE

The purpose of fish presence monitoring is to ensure that anadromous fish can volitionally access the Klamath River and its tributaries within and upstream of the California portion of the Hydroelectric Reach (i.e., the Klamath River and tributaries from Iron Gate Dam [RM 192.9] to the California/Oregon Stateline on the Klamath River following Project implementation. Accordingly, the Licensee shall conduct surveys to document anadromous fish presence and access to the tributaries and mainstem Klamath River.

No later than 24 months following issuance of a FERC license surrender order, the Licensee shall submit a Fish Presence Monitoring Plan (Fish Presence Plan) to the Deputy Director for review and approval. The Fish Presence Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, and National Marine Fisheries Service (NMFS). The Licensee shall solicit comments from the agencies listed above. Additionally, the Fish Presence Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Fish Presence Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Fish Presence Plan upon Deputy Director and any other required approvals. Any changes to the Fish Presence Plan shall be approved by the Deputy Director prior to implementation. At a minimum, the Fish Presence Plan shall include: (1) a list of anadromous fish species covered by the plan; (2) California survey reaches; (3) frequency and duration of surveys; (4) survey methods; and (5) reporting. Additional information on the minimum requirements for each of these plan elements is provided below.

Fish Species: The Fish Presence Plan shall, at a minimum, include surveys for the following anadromous fish species: spring and fall run Chinook (*Oncorhynchus tshawytscha*), coho (*Oncorhynchus kisutch*), Pacific lamprey (*Entosphenus tridentatus*), and steelhead (*Oncorhynchus mykiss*).

California Survey Reaches: Unless otherwise approved by the Deputy Director, the Licensee shall survey, in California, all tributaries with potentially viable anadromous fish habitat that have a confluence within the Hydroelectric Reach, as well as the extent of anadromy in the mainstem to determine if anadromous fish are present. Specific survey reaches of the mainstem Klamath River shall include areas upstream of the California Project reservoir footprints.

[26] The United States Bureau of Reclamation's Klamath River Project must meet flows below Iron Gate Dam that are specified in the 2013 Joint Biological Opinion issued to the Bureau of Reclamation for the Klamath Irrigation Project (NMFS and USFWS, 2013), and additionally must meet requirements of injunctions issued in Hoopa Valley Tribe v. Bureau of Reclamation, No. 16¬ cv-4294 (Docket No. 111), and Yurok Tribe v. Bureau of Reclamation, No. 16-cv-6863 (Docket No. 70). It is anticipated that United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) will issue a new biological opinion with potentially revised instream flow conditions in the near future, and potentially prior to or during drawdown. Drawdown must not interfere with implementation of the flow requirements current at that time.

~~Frequency and Duration: Fish presence surveys shall begin in the third year following the completion of drawdown. Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director.~~

~~Survey Methods: The Licensee shall propose appropriate survey methods (e.g., carcass surveys, snorkel surveys, etc.) to evaluate anadromous fish presence. Information provided shall include: number of days required for surveys with approximate field crew size; equipment that will be used to assess fish presence; global positioning system (GPS) and map of survey areas; field documentation methods (e.g. data sheets, photo documentation); and survey timing. The results of tributary fish presence surveys may be used to determine the need for surveys of the mainstem Klamath River (e.g., anadromous fish present in tributaries above Copco No. 1 Reservoir footprint would indicate anadromous fish can access portions of the mainstem Klamath River below that point, eliminating the need for additional evaluation). A minimum of four weeks prior to conducting fish presence surveys, the Licensee shall notify staff from the State Water Board, North Coast Regional Board, CDFW, and NMFS so that agency staff may participate in the surveys, if desired.~~

~~Reporting: The Licensee shall report fish presence monitoring results annually to the Deputy Director.~~

~~All annual reports shall, at a minimum, include:~~

~~(1) A summary of the fish presence results; and~~
~~(2) An overall assessment of fish presence in the newly accessible Klamath River and tributaries. The Licensee shall consider fish return projections and observations (e.g., barrier) reported as part of the fish surveys in the reports.~~

~~Additionally, the fourth annual report shall, at a minimum, include:~~

~~(1) An analysis of whether any encountered fish passage impediment is Project-related; and~~
~~(2) Proposed actions to remedy any Project-related impediments.~~

~~The Deputy Director may require the Licensee to submit proposed actions to address a fish passage impediment that the Deputy Director finds is Project-related. Prior to implementing any proposed actions, the Licensee shall receive approval from the Deputy Director. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the action upon receipt of Deputy Director and any other required approvals.~~

CONDITION 5. AQUATIC RESOURCES

The Licensee shall implement Aquatic Resource (AR) Measures ~~1, 2, 4, 6, and 7~~ as proposed in the Licensee's Definite Plan for the Lower Klamath Project, Appendix I ~~May 2018, *Appendix I*~~

~~*of the Third Administrative Draft of the Definite Plan for Decommissioning*[27] (May 2018 Appendix I)~~, and as updated based on the requirements presented in this condition. Except to the extent changes are required by this condition, the Licensee shall submit any proposed changes in the material terms of the measures as described in the Definite Plan ~~May 2018~~ Appendix I, along with an explanation of the reason for the proposed change and any additional information relied on. The Deputy Director may approve, deny, or conditionally approve any changes proposed by the Licensee.

Aquatic Resource Measure 1 – Mainstem Spawning
AR Measure 1 includes two actions: 1) Tributary-Mainstem Connectivity; and 2) Spawning Habitat Evaluation.

Action 1: Tributary-Mainstem Connectivity. No later than six months following issuance of a FERC license surrender order and prior to Project implementation, the Licensee shall submit the Tributary-Mainstem Connectivity Plan for Deputy Director review and approval. The Tributary-Mainstem Connectivity Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, ODEQ, NMFS, and CDFW. The Licensee shall solicit comments from the agencies listed above. Additionally, the Tributary-Mainstem Connectivity Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Tributary-Mainstem Connectivity Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Tributary-Mainstem Connectivity Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Tributary-Mainstem Connectivity Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Tributary-Mainstem Connectivity Plan shall include: proposed monitoring including: methods, timing, duration, frequency, and locations; and proposed reporting. The Tributary-Mainstem Connectivity Plan shall also include potential actions the Licensee may implement to remove Project-related obstructions to tributary connectivity and fish passage. The Tributary-Mainstem Connectivity Plan shall monitor and address tributary connectivity and fish passage in the tributaries identified in AR Measure 1, Action 1 as well as all newly created stream channels that were previously inundated by Project reservoirs prior to drawdown.

The Tributary-Mainstem Connectivity Plan shall include monitoring for ~~at least~~ two calendar years consistent with the schedule included in Table 4-1 of the Definite Plan ~~directly following the completion of drawdown activities~~, and within one month following any five (5) year~~10-year~~ flow event[28] that occurs within the first two years following the completion of drawdown ~~unless it is unsafe for field crews, in which case monitoring shall be conducted as soon thereafter as safe conditions occur~~.

Action 2: Spawning Habitat Evaluation. The Licensee shall implement spawning gravel surveys as proposed in AR Measure 1, Action 2. The Licensee shall develop a Spawning Habitat

~~[27] Note the Licensee's May 2018, Appendix I submittal proposes implementation of five aquatic resources measures, which are identified as AR Measures 1, 2, 4, 6, and 7. The document discusses, but does not propose implementation of potential AR Measures 3 and 5.~~
~~[28] A 10-year flow event is 14,854 cfs as recorded at USGS gage No. 11516530 (below Iron Gate).~~

Availability Report and Plan (SHARP) that: (i) summarizes the survey of newly-accessible anadromous fish spawning habitat; and (ii) proposes actions to augment spawning habitat in the mainstem Klamath River and its tributaries. The SHARP shall be developed in consultation with staff from State Water Board, North Coast Regional Board, CDFW, NMFS, United States Fish and Wildlife Service (USFWS), ODEQ, and Oregon Department of Fish and Wildlife. The SHARP shall be submitted to the Deputy Director for review and approval no later than December 31 of the year in which drawdown is completed. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved SHARP, together with any required plan modifications, with FERC. The Licensee shall implement the actions identified in the Deputy Director-approved SHARP upon receipt of Deputy Director and any other required approvals. Any changes to the SHARP shall be approved by the Deputy Director prior to implementation.

The SHARP shall include the following elements for proposed actions to improve spawning habitat: 1) a detailed description of each proposed action; 2) locations of the proposed actions; 3) duration and timing (e.g., season) for implementation of the proposed actions; and 4) assessment of estimated spawning habitat benefits resulting from the proposed action compared to the targets identified in AR Measure 1, Action 2. In the SHARP, the Licensee shall evaluate a range of actions to meet the spawning targets identified in AR Measure 1, Action 2. AR Measure 1, Action 2 identified spawning gravel targets to improve spawning habitat. When spawning gravel augmentation is not appropriate[29], the Licensee shall evaluate and propose other actions to improve spawning and rearing habitat that meet the targets identified in Table 3-1 of AR Measure 1, Action 2. The range of other actions may include: installation of large woody material, riparian planting for shade coverage, wetland construction or enhancement, and cattle exclusion fencing.

Aquatic Resource Measure 2 – Juvenile Outmigration

AR Measure 2 includes three actions: 1) Mainstem Salvage of Overwintering Juvenile Salmonids; 2) Tributary-Mainstem Connectivity Monitoring; and 3) Rescue and Relocation of Juvenile Salmonids and Pacific Lamprey from Tributary Confluence Areas.

Action 1: Mainstem Salvage of Overwintering Juvenile Salmonids. Except as modified by this condition, the Licensee shall implement overwintering juvenile salmonid salvage and relocation efforts as proposed in AR Measure 2, Action 1. The Licensee shall survey a minimum of 10 and maximum of 15 sites in the Klamath River between Iron Gate Dam (RM 192.9) and the Trinity River (RM 43.4) during the pre- and early-drawdown surveys described in AR Measure 2, Action 1 to evaluate the presence and relative abundance of yearling coho salmon. Site selection and survey methods shall be developed in consultation with staff from CDFW, NMFS, State Water Board, and North Coast Regional Board, and implemented as approved by the Deputy Director.

[29] Gravel augmentation shall only be performed in the mainstem Klamath River, unless otherwise approved by the Deputy Director.

Action 2: Tributary-Mainstem Connectivity Monitoring. The Licensee shall implement AR Measure 2, Action 2 as proposed, with the same modifications identified in AR Measure 1, Action 1, above.

Action 3: Rescue and Relocation of Juvenile Salmonids and Pacific Lamprey from Tributary Confluence Areas. No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Juvenile Salmonid Rescue and Relocation Plan (Salmonid Plan) to the Deputy Director for review and approval. The Salmonid Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, NMFS, and CDFW. The Licensee shall solicit comments from the agencies listed above. Additionally, the Salmonid Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Salmonid Plan, together with any required plan modifications, with FERC prior to initiating drawdown. The Licensee shall implement the Salmonid Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Salmonid Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Salmonid Plan shall include:

(1) Methods that will be used to find and relocate juvenile salmonids;
(2) Potential relocation areas and/or criteria that will be used to identify potential relocation areas;
(3) Detailed description of water quality monitoring to be performed at each confluence of the Klamath River and the 13 tributaries[30] listed in AR Measure 2, Action 3. In addition, the plan shall include water quality triggers for implementation of lamprey and juvenile salmonid relocation efforts. The Licensee shall perform the water quality monitoring required here consistent with the sampling methods and QA/QC procedures identified in the Deputy Director-approved WQMP (Condition 1). The Licensee may use water quality monitoring results associated with implementation of the WQMP (Condition 1), as applicable. The Licensee shall provide the proposed frequency, duration, and location for AR Measure 2, Action 3 water quality monitoring;
(4) Detailed description of proposed rescue efforts that includes: duration, method of rescue, target number of fish, locations for capture and relocation;
(5) Provisions for incidental rescue and relocation of Pacific lamprey encountered in tandem with any juvenile salmonid rescue and relocation efforts: and
(6) Reporting to the State Water Board on the implementation of AR Measure 2, Action 3 within six months following implementation of rescue and relocation efforts. At a minimum, reporting shall include: a summary of the water quality data collected; any actions taken by the Licensee to rescue and relocate lamprey and juvenile salmonid, including number of lamprey and juvenile salmonids rescued (including age class), release location, and the success of such efforts.

[30] The 13 tributaries are: Bogus Creek, Dry Creek, Cottonwood Creek, Shasta River, Humbug Creek, Beaver Creek, Horse Creek, Scott River, Tom Martin Creek, O'Neil Creek, Walker Creek, Grider Creek, and Seiad Creek.

Aquatic Resource Measure 4 – Iron Gate Hatchery Management
The Licensee shall implement AR Measure 4 as listed in the Licensee's May 2018, Appendix I.

Aquatic Resource Measure 6 – Suckers
The Licensee shall implement AR Measure 6 as listed in the Licensee's May 2018, Appendix I.

Aquatic Resource Measure 7 – Freshwater Mussels
The Licensee shall implement AR Measure 7 as listed in the Licensee's May 2018, Appendix I.

CONDITION 6. REMAINING FACILITIES AND OPERATIONS

No later than six months following issuance of the FERC license surrender order, and prior to Project implementation, the Licensee shall submit a Remaining Facilities and Operations Plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Remaining Facilities and Operations Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Remaining Facilities and Operations Plan upon Deputy Director and any other required approvals. Any changes to the Remaining Facilities and Operations Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Remaining Facilities and Operations Plan shall include:

(1) A description of all Project facilities and structures that will ~~not be removed~~ be retained during Project implementation[31], including but not limited to Iron Gate Hatchery, the Fall Creek Hatchery, and any Project facilities buried in place;
(2) An analysis of potential water quality impacts associated with remaining facilities and operations, including hazardous materials or wastes present at the facilities and the potential for erosion or runoff to surface waters;
(3) Measures the Licensee proposes to ensure remaining facilities do not contribute to water quality impairments; and
(4) Provisions to assure that ~~How~~ any ongoing measures will be implemented once title of the facilities and/or responsibility for operations is transferred to another entity, the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project. ~~following conclusion of the Project.~~

CONDITION 7. CITY OF YREKA WATER SUPPLY

Prior to initiating drawdown of Project reservoirs, the Licensee shall construct a new, fully operational replacement pipe for the City of Yreka's current water supply pipeline for the section of pipe that crosses Iron Gate Reservoir. The new replacement pipeline section shall be connected to the existing City of Yreka water supply pipeline and installed in a location that prevents river flows during and after drawdown from affecting the City of Yreka's water supply.

[31] It is not necessary to include recreational facilities addressed under Recreation Facilities (Condition 17).

Any work the Licensee undertakes to ensure that the City of Yreka water supply intakes' structures ~~screens~~ comply with fish screen or fish barrier criteria shall be completed within the water delivery outage period specified below ~~above~~.

Except as provided in this condition, the Licensee shall ensure uninterrupted water supply during replacement of the pipeline section, any required intake screen modifications, and throughout Project implementation. A short water delivery outage is necessary to make the final connections following construction of the new pipeline. The Licensee shall limit the water delivery outage to a maximum of 12 hours or greater as approved by the City. The Licensee shall coordinate the water delivery outage period with the City of Yreka to ensure the City of Yreka has an adequate supply of water stored to cover the 12-hour maximum water delivery outage period or alternative period as approved by the City.

Water pipeline and intake work shall not cause impacts to water quality that exceed North Coast Basin Plan standards. If the Licensee proposes any in-water work, the Licensee shall prepare a water quality monitoring and protection plan in compliance with Condition 9 of this certification for Deputy Director review and approval.

CONDITION 8. AQUATIC VEGETATION MANAGEMENT

In the event chemical vegetation control is proposed to control algae or aquatic weeds, the Licensee shall consult with staff from the United States Army Corps of Engineers (USACE), CDFW, North Coast Regional Board, and State Water Board and submit a proposal to the Deputy Director for review and approval. The proposal shall include: (1) the Licensee's plans to implement chemical vegetation management, including any public noticing or additional measures proposed beyond those required in this certification; (2) the timeline for the application of chemicals and any potential impacts to beneficial uses of water, including Native American culture uses; (3) comments and recommendations made in connection with the consultation; and (4) a description of how the proposal incorporates or addresses agency comments and recommendations. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved proposal, together with any required plan modifications, with FERC. The Licensee shall implement the proposal upon Deputy Director and any other required approvals. Any changes to the proposal shall be approved by the Deputy Director prior to implementation.

At a minimum, the Licensee shall comply with the terms in State Water Board Order No. 2013-0002-DWQ (as amended by Order 2014-0078-DWQ), *National Pollutant Discharge Elimination System* (NPDES) No. CAG990005, *Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Water of the United States from Algae and Aquatic Weed Control Applications* and any amendments thereto.

CONDITION 9. CONSTRUCTION: GENERAL PERMIT COMPLIANCE, AND WATER QUALITY MONITORING AND PROTECTION PLANS

The Licensee shall comply with the terms and conditions in the State Water Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit;

State Water Board Order 2009-0009-DWQ, as amended by State Water Board Orders 2010-0014-DWQ and 2012-0006-DWQ), and ongoing amendments during the life of the Project.

For any ground-disturbing activities that could impact water quality (including beneficial uses) that are neither addressed by the Construction General Permit nor addressed in other conditions of this certification (e.g. Reservoir Drawdown [Condition 3], Hatcheries [Condition 12], and Restoration [Condition 13]) site-specific Deputy Director-approved water quality monitoring and protection plans shall be prepared and implemented. Prior to the construction or other activity that could impact water quality or beneficial uses, including, but not limited to, planned recreation-related construction, the Licensee shall submit the water quality monitoring and protection plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement site-specific water quality monitoring and protection plans upon receipt of Deputy Director and any other required approvals.

Any water quality monitoring and protection plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement. The plan shall be based on actual-site geologic, soil, and groundwater conditions and at a minimum include:

(1) Description of site conditions and the proposed activity;
(2) Detailed descriptions, design drawings, and specific topographic locations of all control measures in relation to the proposed activity, which may include:
    a. Measures to divert runoff away from disturbed land surfaces;
    b. Measures to collect and filter runoff from disturbed land surfaces, including sediment ponds at the sites; and
    c. Measures to dissipate energy and prevent erosion;
(3) Revegetation of disturbed areas using native plants and locally-sourced plants and seeds; and
(4) A monitoring, maintenance, and reporting schedule.

Potential best management practices (BMPs) include those identified in the Licensee's Definite Plan ~~January 3, 2018, update to the *Administrative Draft of the Definite Plan for Decommissioning*, the Licensee's September 30, 2017, Technical Support Document~~[32], *Water Quality Management for Forest System Lands in California –Best Management Practices* (USFS 2012), California Department of Transportation's May 2017 *Construction Site Best Management Practices (BMP) Manual* (Caltrans BMP Manual) (Caltrans 2017), or other appropriate documents.

CONDITION 10. WASTE DISPOSAL

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Waste Disposal Plan to the Deputy Director for review and approval. The Waste

[32] ~~September 30, 2017, California Environmental Quality Act (CEQA) and California and Oregon 401 Water Quality Certifications Technical Support Document.~~

Disposal Plan shall describe how the Licensee will properly dispose of all non-hazard wastes[33] generated as part of the Project in a manner protective of water quality. The Waste Disposal Plan shall be developed in consultation with staff from the North Coast Regional Board and State Water Board. The Licensee shall solicit comments from the agencies listed. Additionally, the Waste Disposal Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the Waste Disposal Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Waste Disposal Plan shall be approved by the Deputy Director prior to implementation.

At a minimum, the Waste Disposal Plan shall include:

(1) The elements of the waste disposal description presented in Section 5 of the Licensee's Definite Plan~~September 30, 2017, Technical Support Document~~, that influence water quality, and as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Waste Disposal Plan submittal shall highlight such changes and provide a rationale, including any new information relied on;
(2) An estimate of the quantity and nature of anticipated waste generated by dam removal activities and description of where all materials and debris will be disposed;
(3) A detailed description of on-site disposal, including the proposed locations and associated size of sites;
(4) Erosion control measures for on-site disposal activities; and
(5) A proposal to restore on-site disposal sites with topsoil and native vegetation, including monitoring and reporting on the implementation of this condition to ensure the stability of the restored disposal site and protection of water quality.

On-site disposal of inert, non-hazardous debris resulting from dam removal activities may be buried in accordance with requirements in division 2, title 27 of the California Code of Regulations. ~~The Licensee shall ensure that the disposal sites are above the ordinary high water mark (OHWM) and in a location that does not drain directly to surface waters.~~ The Licensee shall select disposal site locations where drainage patterns can be preserved. ~~If a waste disposal site has the potential to drain into surface waters, catch basins shall be constructed and other appropriate BMPs from the Caltrans BMP Manual shall be implemented, to intercept runoff before it reaches surface waters.~~

On-site disposal areas that will remain uncovered through the rainy season (between October 16 and May 14) shall be protected with appropriate BMPs from the Caltrans BMP Manual to prevent erosion. ~~In no circumstance shall spoil sites be located at or below the OHWM.~~ Reinforced steel and other recyclable materials should be recycled at local recycling facilities. Excavated embankment material may be used as topsoil to cover on-site disposal areas prior to grading and being sloped for drainage. Concrete rubble resulting from demolition of the

[33] Management of hazardous materials is covered in Hazardous Materials Management (Condition 11).

powerhouses may be buried within the existing tailrace channel. All mechanical and electrical equipment shall be hauled to a suitable commercial landfill or salvage collection point. Prior to Project completion, all on-site disposal locations shall be graded and vegetated to reduce the potential for erosion.

CONDITION 11. HAZARDOUS MATERIALS MANAGEMENT

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Hazardous Materials Management Plan to the Deputy Director for review and approval. The Hazardous Materials Management Plan shall be developed in coordination with State Water Board staff. The Hazardous Materials Management Plan shall include the: (a) proper disposal or abatement of hazardous materials and wastes that are encountered as part of decommissioning activities (e.g., asbestos tiles or building materials, batteries, etc.); (b) proper storage, containment, and response to spills of hazardous materials and wastes that are part of Project implementation (e.g., gasoline and diesel for vehicles, etc.); and (c) proper removal and disposal of septic tanks. At a minimum, the Hazardous Materials Management Plan shall include the requirements presented in this condition and:

(1) The elements of the hazardous materials management description presented in Section 7 of the Licensee's Definite Plan~~September 30, 2017, Technical Support Document~~, that influence water quality, as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Hazardous Material Management Plan submittal shall highlight such changes and provide a rationale, including any new information relied on;

(2) A list with contact information of federal, state, and local officials the Licensee will contact to respond in the event of a hazardous materials spill. The list and contact information shall be maintained and updated by the Licensee. In the event of a hazardous material spill, at a minimum, the Licensee shall immediately inform the California Emergency Management Agency, CDFW, North Coast Regional Board, and the State Water Board staff of the magnitude, nature, time, date, location, and action taken for the spill;

(3) An inventory of hazardous materials and wastes at each facility and the plan for final disposition of the hazardous materials and wastes;

(4) Description of hazardous materials storage, spill prevention, and cleanup measures, including the deployment and maintenance of spill cleanup materials and equipment at each facility/site to contain any spill from Project activities. Onsite containment for storage of chemicals classified as hazardous shall be away from watercourses and include secondary containment and appropriate management as specified in California Code of Regulations, title 27, section 20320; and

(5) Testing, monitoring, and reporting that will be implemented if a spill occurs to ensure water quality is not affected.

The Deputy Director may require modification as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the Hazardous Materials Management Plan upon receipt of Deputy

Director and any other required approvals. Any changes to the Hazardous Materials Management Plan shall be approved by the Deputy Director prior to implementation.

For structures being removed, the Licensee shall inspect each structure prior to removal for hazardous materials (e.g. asbestos-containing material, lead-based paint, and PCBs) and perform any necessary sampling or testing when inspection alone does not provide sufficient information to determine whether the material is hazardous. Any material with asbestos, lead, PCBs, or other hazardous waste shall be handled and disposed of as hazardous waste at approved hazardous waste facilities in accordance with applicable waste management regulations. Other deconstruction materials shall be disposed of as non-hazardous waste in accordance with Waste Disposal (Condition 10) of this certification.

All hazardous materials removed from inside existing structures during Project implementation (e.g., paints, oils, and welding gases) shall be either returned to the vendor, recycled, or managed and disposed of as hazardous waste at an approved hazardous waste facility in accordance with applicable federal and state regulations. Transformer oils shall be tested for PCBs if no data exists. Any tanks that contained hazardous materials shall be decontaminated prior to disposal. Universal hazardous waste (e.g., lighting ballasts, mercury switches, and batteries) shall be handled in accordance with applicable federal and state universal waste regulations.

Existing septic tanks associated with the Project shall be decommissioned in place or removed and disposed of in accordance with the corrective action requirements specified in the State Water Board's Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)[34] (State Water Board 2012).

CONDITION 12. HATCHERIES

No later than six months following issuance of a FERC license surrender order, the Licensee shall submit a Hatcheries Management and Operations Plan (Hatcheries Plan) to the Deputy Director for review and approval. The Hatcheries Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, and NMFS. The Licensee shall solicit comments from the agencies listed above. Additionally, the Hatcheries Plan shall include comments received during this ~~the~~ consultation process with the State Water Board, North Coast Regional Board, CDFW, and NMFS and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Hatcheries Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Hatcheries Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Hatcheries Plan shall be approved by the Deputy Director prior to implementation. At a minimum, the Hatcheries Plan shall include:

(1) The Licensee's plan to construct, operate, ~~and~~ maintain the Fall Creek and Iron Gate Hatcheries, and facilitate transfer of ownership and continued operation of Iron Gate Hatchery to CDFW as presented in the Definite Plan for the Lower

[34] The OWTS Policy was adopted by the State Water Board on June 19, 2012 per Resolution No. 2018-0019; it was approved by the Office of Administrative Law on November 13, 2012; and consistent with OWTS Policy section 13.0, became effective on May 13, 2013.

Klamath Project ~~Licensee's June 1, 2018 submittal of updates to Section 7.8 of the *Administrative Draft of the Definite Plan for Decommissioning*~~[35], and as updated based on the requirements presented in this certification. If the Licensee proposes to change any elements material to water quality, the Hatcheries Plan shall highlight such changes and provide a rationale, including any new information relied on;

(2) Annual fish production goals that include the target production numbers by species, life stage, and hatchery location;

(3) Identification of water supplies that will be used by CDFW to operate the Iron Gate and Fall Creek Hatcheries including location, anticipated diversion rates (cfs) and total amount (annual and monthly), minimum amount of flow that will be bypassed below the diversion to provide volitional fish passage; and compliance with any water right requirements associated with water diversions;

(4) Implementation actions to be used by CDFW for protection of hatchery and natural fish populations (as impacted by hatchery operations) in the event water supply to Iron Gate or Fall Creek Hatcheries is unavailable due to drought or other limitations; and

(5) Duration of each hatchery's operations by CDFW, including the timing of transfer of ownership and continued operation of Iron Gate Hatchery to CDFW.

Prior to operation of the Fall Creek and Iron Gate Hatcheries, the Licensee shall, for each hatchery, obtain coverage under and comply with the *Cold Water Concentrated Aquatic Animal Production Facility Discharges to Surface Waters, National Pollutant Discharge Elimination System* permit (NPDES No. CAG131015) or subsequent NPDES permits issued by the North Coast Regional Board.

CONDITION 13. RESTORATION

No later than six months following issuance of the FERC license surrender order, and prior to initiation of drawdown activities, the Licensee shall submit a Restoration Plan to the Deputy Director for review and approval. The Restoration Plan shall be developed in consultation with staff from the North Coast Regional Board, State Water Board, and CDFW. The Licensee shall solicit comments from the agencies listed above. Additionally, the Restoration Plan shall include comments received during this ~~the~~ consultation process with the State Water Board, North Coast Regional Board, and CDFW and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Restoration Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Restoration Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Restoration Plan shall be approved by the Deputy Director prior to implementation. At a minimum, the Restoration Plan shall include:

[35] The ~~June 1, 2018 update to Section 7.8 of the Administrative Draft of the~~ Definite Plan ~~for Decommissioning~~ is available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.shtml

(1) The material elements of the Licensee's restoration plan for the Project, as presented in the Licensee's Definite Plan~~September 30, 2017, Technical Support Document~~, and as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Restoration Plan submittal shall highlight such changes and provide a rationale, including any new information relied on;

(2) Detailed description of proposed restoration activities (e.g., grading, planting, swales, wetland construction, etc.) and preliminary map identifying proposed locations for restoration activities. The preliminary map shall be updated within two months following drawdown, as necessary. The description of proposed restoration activities shall include associated water quality protection measures the Licensee will implement as part of restoration;

(3) Exclusive use of native plants, with preference for plants that promote soil stabilization;

(4) Description of how the Licensee will evaluate for the presence of wetlands that could be affected by the Project (including potential disposal areas) and ensure no net loss of wetland or riparian habitat functions;

(5) Description of how the Licensee will ensure floodplain connectively within the reservoir footprint;

(6) Description of how the Licensee will monitor for and address invasive weeds in the restored area;

(7) Plan for installation of large woody material in the Hydroelectric Reach in California that includes:
   a. Number or volume of large woody material to be installed;
   b. Placement of a portion of large woody material at or above the OHWM to create habitat at higher flows,
   c. Consistency with practices in California Salmonid Stream Habitat Restoration Manual (CDFG 2010) or guidance provided through consultation with staff from CDFW, NMFS, North Coast Regional Board, and State Water Board; and
   d. Timeline for placement of large woody material, which shall not occur until active dam and facilities removal work is complete; and

(8) Monitoring and reporting on the implementation of the Restoration Plan, including adaptive management measures that will be implemented over time to ensure successful restoration (e.g., measures to address the loss of newly planted vegetation, soil instability[36], etc.). Monitoring shall occur frequently enough to determine whether plantings are successful and to facilitate implementation of adaptive measures (e.g., supplemental irrigation, re-seeding, changes in plant types) to ensure rapid establishment of vegetation.

Within six months of concluding drawdown activities, and annually thereafter until otherwise directed by the Deputy Director, the Licensee shall provide a report to the Deputy Director documenting implementation of the Restoration Plan, including highlights of any problems encountered and adaptive management measures deployed or proposed to address the problems.

[36] Adaptive management measures for soil stabilization may refer to the Slope Stability Monitoring Plan required in Slope Stability (Condition 16).

The Licensee shall provide additional reports or information related to implementation of the Restoration Plan if requested by the Deputy Director.

CONDITION 14. WATER SUPPLY MONITORING AND MANAGEMENT

The Licensee shall implement the following measures to protect water supply and beneficial uses. The Licensee shall annually prepare, and submit to the Deputy Director, a Water Supply Management Report that includes the elements described below. The Deputy Director may require implementation of additional adaptive management measures informed by monitoring results.

Surface Water Diversions: The Licensee shall identify all points of diversion on the Klamath River between Iron Gate Dam and Cottonwood Creek listed in the Electronic Water Rights Information Management System (eWRIMS). The Licensee shall contact all water rights holders with points of diversion on the Klamath River between Iron Gate Dam and Cottonwood Creek to determine whether the water right holder is interested in working with the Licensee to evaluate potential Project impacts to the water right holder. If potential impacts are identified, the Licensee shall provide temporary accommodations (e.g., replacement water, settling basins, etc.) to address them. Following dam removal, the Licensee shall investigate ~~investigation~~ any impacts reported by a diverter. If the investigation confirms an adverse impact has occurred as a result of dam removal, the Licensee shall implement measures to reduce impacts and allow the water right holder to divert water in the same manner (e.g., amounts, suitable quality, and timing) as before dam removal.

Prior to and annually for the first two years following drawdown (the drawdown year and subsequent year), the Licensee shall submit a Water Supply Management Report to the Deputy Director on implementation of the surface water supply activities described above. At a minimum, the report shall include: a map showing the location of potentially affected points of diversion; a description of the potential adverse effects; a description of proposed/implemented mitigation measures; and the number of water right holders who agreed to work with the Licensee to address potential water supply issues.

Groundwater: To determine Project effects on surrounding groundwater wells, the Licensee shall, within a 2.5-mile range of the reservoirs' OHWM, monitor groundwater levels before, during, and after drawing down the reservoirs. To identify groundwater wells, the Licensee shall outreach to all residents and landowners within 2.5 miles of the California Project reservoirs to inquire about their groundwater wells. At least two months prior to commencing drawdown activities, the Licensee shall monitor groundwater levels at a minimum of 10 locations within 2.5 miles of the California reservoirs dispersed throughout the Hydroelectric Reach in California. The Licensee may begin groundwater elevation monitoring earlier, in order to integrate observations of natural seasonal fluctuations in groundwater elevation into the impact analysis.

The Licensee shall continue to monitor groundwater levels, at least monthly, until otherwise approved by the Deputy Director and for a term of at least one year ~~two years~~ following completion of drawdown of all Project reservoirs. Monitoring may occur at groundwater wells of landowners or residents with wells located within 2.5 miles of the California Project reservoirs who volunteer to allow testing or at other groundwater monitoring wells around the California

Project reservoirs. Potential groundwater monitoring locations and measures to address potential water supply impacts are identified in Section 7.7.3 of the Licensee's Definite Plan~~September 30, 2017, Technical Support Document~~. The Licensee shall provide the Deputy Director with the locations of groundwater wells that will be monitored per this condition, and the Deputy Director may require additional monitoring if the locations chosen do not provide sufficient information on potential impacts to groundwater levels. The Licensee shall submit an annual Groundwater Report to the Deputy Director, for the year prior to and the year ~~a minimum of three years~~ directly following completion of drawdown. Monitoring duration may be adjusted based on groundwater levels reported in annual Groundwater Report, and as approved by the Deputy Director. At a minimum, the annual Water Supply Management Report shall include a section on groundwater that:

- Documents groundwater level monitoring results;
- Highlights any trends or significant changes in groundwater levels; and
- Summarizes actions the Licensee has or will implement to address any impacts to groundwater supply associated with Project implementation.

Fire Protection: The first annual Water Supply Management Report shall include a list and map of locations where fire trucks and/or helicopters may access the Klamath River and its tributaries for residential fire protection efforts in the Hydroelectric Reach.

If the Deputy Director finds that the measures undertaken to address water supply impacts are insufficient or additional reporting is needed, the Deputy Director may require the Licensee to implement additional measures or continue reporting on implementation of this condition.

CONDITION 15. AMPHIBIAN AND REPTILE MANAGEMENT

No later than three months following issuance of a FERC license surrender order, the Licensee shall submit an Amphibian and Reptile Rescue and Relocation Plan (Amphibian and Reptile Plan) to the Deputy Director for review and approval. The Amphibian and Reptile Plan shall address protection of amphibians and reptiles previously found in the areas of the Project directly affected by in-water construction ~~drawdown~~ and land-disturbing activities that are listed under the Federal Endangered Species Act or the California Endangered Species Act, or are designated as Species of Special Concern by CDFW. These species may include, but are not limited to: southern torrent salamander, Scott Bar salamander, Siskiyou Mountains salamander, Pacific tailed frog, foothill yellow-legged frog, northern red-legged frog, and western pond turtle. At a minimum the Amphibian and Reptile Plan shall include:

(1) The amphibians and reptiles covered by the plan;
(2) Surveys and protocols that will be implemented to identify and relocate amphibians and reptiles;
(3) Identification of the minimum qualifications for the individual(s) that will conduct the surveys and relocations, if necessary;

(4) Timing and locations where surveys will be conducted, including all areas of the Project directly affected by in-water construction ~~drawdown~~ and land-disturbing activities in California with known amphibian or reptile habitat or presence;
(5) Identification of potential relocation areas, which may include lower reaches of Klamath River tributaries with suitable habitat approved by USFWS and CDFW; and
(6) Monitoring and reporting that will be implemented to document compliance with this condition, including notification and reporting identified by USFWS and CDFW through consultation to develop the Amphibian and Reptile Plan.

The Amphibian and Reptile Plan shall be developed in consultation with staff from CDFW, USFWS, and State Water Board. The Licensee shall solicit comments from the agencies listed above. Additionally, the Amphibian and Reptile Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Amphibian and Reptile Plan, together with any required modifications, with FERC. The Licensee shall implement the Amphibian and Reptile Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Amphibian and Reptile Plan shall be approved by the Deputy Director prior to implementation.

The Amphibian and Reptile Plan must be approved by the Deputy Director prior to drawdown, in-water work, and work in riparian areas. Prior to approval of the Amphibian and Reptile Plan, the Licensee may implement ground-disturbing activities occurring entirely above the OHWM, so long as a USFWS- and CDFW-approved biological monitor surveys the area, monitors construction, and takes appropriate actions to protect amphibians and reptiles.

CONDITION 16. SLOPE STABILITY

The Licensee shall identify reservoir slopes and other Project areas prone to instability~~, and implement site-specific measures to avoid potential slope erosion and associated increases in sedimentation to surface waters throughout Project implementation~~. Additionally, the Licensee shall monitor for ~~and address~~ slope instability throughout the term of the Project, including restoration activities. Within three months of issuance of the FERC license surrender order and prior to starting drawdown, the Licensee shall submit a Slope Stability Monitoring Plan to the Deputy Director for review and approval. The Slope Stability Monitoring Plan shall be developed in consultation with State Water Board staff. At a minimum, the Slope Stability Monitoring Plan shall include:

(1) The material elements of the Licensee's proposal related to stability of embankments and reservoir rims, as presented in Section~~s 3 and~~ 4 and Appendices D and E of the Definite Plan ~~of the Licensee's September 30, 2017, Technical Support Document~~, and as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Slope Stability Monitoring Plan shall highlight such changes and provide a rationale, including any new information relied on;
(2) A list of slopes and Project areas prone to instability;

(3) Number and location of piezometer wells the Licensee will use to monitor water levels and pore pressure;
(4) Number and location of inclinometer installations to monitor slope stability;
(5) A list of measures the Licensee will implement to protect access along public roads and maintain public safety ~~prevent erosion and maintain soil stability~~;
(6) A description of soil stability monitoring, including locations and schedule;
(7) Visual monitoring for potential slumping, cracking, and other signs of slope instability throughout the Project area;
(8) Potential measures the Licensee will implement to address soil instability;
(9) Coordination with Reservoir Drawdown (Condition 3) to address the potential modification of drawdown rates to control slope instability if necessary to protect infrastructure, property, or resources;
(10) Slope inspections during drawdown of the reservoirs and after storm events, and implementation of any necessary repairs, replacements, and/or additional measures to minimize potential slope instability effects on public roads and public safety ~~water quality~~ based on inspection information; and
(11) Submittal of the following reports to the Deputy Director until otherwise approved:
    a. An annual report that summarizes: slope stability monitoring and inspection
    b. information; any repairs, replacements, or additional stabilization measures implemented; and any proposed changes to the Slope Stability Monitoring Plan; and
    c. Monthly reports during the rainy season (October 16 – May 14) that identify any areas that have experienced slope instability, any actions taken to control and improve slope stability, and an assessment of the success of initial and any ongoing slope stability actions implemented.

The Licensee shall submit the Slope Stability Monitoring Plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Slope Stability Monitoring Plan, together with any required modifications, with FERC. The Licensee shall implement the Slope Stability Monitoring Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Slope Stability Monitoring Plan shall be approved by the Deputy Director prior to implementation.

Upon request, the Licensee shall provide additional information regarding slope stability measures undertaken to address identified slope instability. If monitoring and inspection indicate that the measures identified in the Slope Stability Monitoring Plan are insufficient to protect public roads and public safety ~~water quality~~, the Deputy Director may establish a timeframe and require the Licensee to re-consult on the Slope Stability Monitoring Plan, make proposed changes, and resubmit the Slope Stability Monitoring Plan for Deputy Director approval.

CONDITION 17. RECREATION FACILITIES

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Recreation Facilities Plan to the Deputy Director for review and approval. The Recreation Facilities Plan shall be developed in consultation with staff from the State Water

Board, North Coast Regional Board, and CDFW. The Licensee shall include comments received from the agencies consulted during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Recreation Facilities Plan, together with any required modifications, with FERC. The Licensee shall implement the Recreation Facilities Plan upon receipt of Deputy Director and any other required approvals. Any changes to the Recreation Facilities Plan shall be approved by the Deputy Director prior to implementation. At a minimum, the Recreation Facilities Plan shall include:

(1) The material elements of the Licensee's recreation proposal for the Project, as presented in Section 8.9.1 of the Definite Plan ~~Licensee's September 30, 2017, Technical Support Document~~, and as updated based on the requirements presented in this condition. If the Licensee proposes to change any elements material to water quality, the Recreation Facilities Plan submittal shall highlight such changes and provide a rationale, including any new information relied on;

(2) A list of recreation facilities associated with the Project;

(3) Identification of recreation facilities that will be removed and a schedule for removal;

(4) Identification of any recreation sites to be added or maintained by third-party owners/operators following dam removal, including location, the types of facilities to be added or maintained, the entity that will own/operate and maintain the sites, ~~and~~ the proposed schedule for completion of new facilities, and a proposal for transitioning recreation sites to the new owner/operator;

(5) Proposed recreation site restoration or improvements, the entity that will own/operate the sites, and a proposal for transitioning recreation sites to the new owner/operator;

(6) Proposed measures to protect water quality and beneficial uses during any construction, removal, maintenance, or other activities associated with the Project recreation facilities;

(7) Water quality monitoring of Project recreation areas in compliance with this condition;

(8) Public education signage regarding aquatic invasive species and proper boat cleaning at established public boat access locations or visitor information kiosks in the vicinity;

(9) Installation, if necessary, and maintenance of boat cleaning stations at Project boat ramps for the removal of aquatic invasive species will be addressed by the facility operator/owner in accordance with applicable law in California;

(10) Signage posted at Project recreation facilities for water quality impairments (e.g., E. coli or fecal coliform and microcystin toxin) discovered through sampling under this condition or other efforts. If water quality monitoring indicates the impairments are an ongoing problem, the Licensee shall propose implementation of appropriate measures as part of the annual reporting requirement outlined in this condition; and

(11) Annual reporting to the Deputy Director on implementation of the Recreation Facilities Plan that includes: the status of any proposed construction, removal, or modifications to Project recreation facilities; water quality monitoring results required per this condition; and any proposed modifications to the Recreation

Facilities Plan requested by the Licensee. Before license surrender is effective pursuant to Condition 33, the KRRC will address how any ongoing measures will be implemented once ownership and responsibility for maintenance and operations of recreational facilities is transferred to another entity.

Recreation Areas Water Quality Monitoring: The Licensee or owner shall collect and analyze grab water samples as outlined below near recreation sites that will provide recreational water contact following reservoir drawdown and dam removal for protection of the recreational water contact (REC-1) beneficial use as defined in the North Coast Basin Plan. The Licensee may use the water quality results collected under the WQMP (Condition 1) and other water quality monitoring efforts[37] in the Klamath River watershed that comply with Water Quality Monitoring and Adaptive Management (Condition 1) and the provisions of the Deputy Director-approved WQMP, as appropriate.

For fecal coliform and *E.coli*:

Timing: ~~Prior to drawdown, samples shall be collected during the 30-day period that spans the Independence Day holiday (June-July) and the Labor Day holiday (August-September).~~ Following completion of drawdown, sampling shall be performed as necessary to monitor beneficial use until recreation facility is transferred to a new owner, as approved by the Deputy Director in the Recreation Facilities Plan.

Frequency: Project facilities shall be monitored twice every year until each recreation facility is transferred to a new owner or as otherwise approved by the Deputy Director.

Location: Samples shall be collected at all Project recreation facilities that provide for recreational water contact unless otherwise approved by the Deputy Director. Samples shall be collected at locations near restrooms, recreation facilities, and other areas of high use.

Method: The Licensee shall use the five samples in 30-day methodology or other future protocol identified in the North Coast Basin Plan.

For microcystin toxin:

~~Prior to drawdown, the Licensee shall annually monitor for microcystin toxin at all Project recreation sites that provide for recreational water contact unless otherwise approved by the Deputy Director.~~ At a minimum, monitoring shall continue monthly (May through October) ~~for two years~~ following the completion of drawdown until each recreation facility is transferred to a new owner unless the recreation site is removed. For newly constructed or modified-existing recreation sites, the Licensee shall monitor microcystin toxins ~~for a minimum of two year~~ until each recreation facility is transferred to a new owner beginning with completion of construction, unless otherwise approved by the Deputy Director.

[37] Other water quality efforts may include Interim Measure 15 as described in Appendix D of the Klamath Hydroelectric Settlement Agreement, as amended November 30, 2016.

The Licensee shall report monitoring results annually. Reporting shall summarize monitoring results; highlight any exceedances of fecal coliform, E. coli, or microcystin toxin and propose adaptive management measures to address exceedances. Based on monitoring results, the Deputy Director may require the Licensee to modify monitoring frequency, methods, duration, or to implement additional adaptive management measures. The Licensee shall implement changes upon receipt of Deputy Director and any other required approvals.

CONDITION 18. LIMITATIONS ON HYDROPOWER OPERATIONS

This water quality certification is for the proposed removal of Project facilities as described in the Licensee's application, and shall not be construed as approval of more than incidental, short-term interim operation of the Project hydroelectric facilities until such removal can be implemented.

Not later than 24 months following issuance of the FERC license surrender order, if drawdown and dam removal are not initiated, the Licensee shall submit an Interim Hydropower Operations Plan (Operations Plan) to the Deputy Director for review and approval. The Operations Plan shall describe additional measures the Licensee will implement to protect water quality and fisheries in advance of drawdown and dam removal activities. The Operations Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, NMFS, and USFWS.

The Licensee shall solicit comments from the agencies listed above. Additionally, the Operations Plan shall include comments received during this ~~the~~ consultation process with the State Water Board, North Coast Regional Board, CDFW, NMFS, and -USFWS and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Operations Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Operations Plan upon receipt of Deputy Director and any other required approvals.

Dam removal must be initiated no later than five years following issuance of the FERC license surrender order unless the Licensee can demonstrate to the satisfaction of the Executive Director of the State Water Board that the delay is due to factors outside of the Licensee's control.

CONDITION 19. WATER RIGHTS MODIFICATION

The Licensee shall provide the State Water Board with a description of the Licensee's proposal for the post-dam removal disposition of all water rights associated with Project facilities. Prior to changing any water diversion for implementation of the Project, the Licensee shall consult with State Water Board staff regarding potential modifications to or transfer of state-issued water right permits and licenses that may be required by the Project. The Licensee shall follow the procedures for any such modification, as described in the California Water Code and in California Code of Regulations, title 23. Nothing in this certification shall be construed as State Water Board approval of the validity of any water rights, including pre-1914 or riparian claims. The State Water Board has separate authority under the California Water Code to investigate and take enforcement action if necessary to prevent any unauthorized or threatened unauthorized diversions of water.

CONDITION 20. TRIBAL WATER QUALITY STANDARDS

Project implementation and compliance with the conditions in this certification are anticipated to result in improved compliance with downstream water quality standards for the Hoopa Valley Tribe, as described in the *Water Quality Control Plan, Hoopa Valley Indian Reservation* (Hoopa Valley Tribe 2008)[38]. The Yurok Tribe has applied to the United States Environmental Protection Agency for treatment-as-a-state status under the Clean Water Act, and it is possible that other tribes may similarly apply for and receive such status.

To ensure that the requirements of this certification ultimately meet tribal Clean Water Act standards, the 32-month assessment on anticipated compliance under Compliance Schedule (Condition 2) shall also be submitted to the Hoopa Valley Tribe and any other Native American tribe that has subsequently obtained treatment-as-a-state status. Any comments from such tribes received by the Deputy Director on the report shall be a factor in the Deputy Director's consideration of whether to require implementation of additional management measures.

Additionally, the Licensee shall submit to the Hoopa Valley Tribe, and any other tribe that has subsequently obtained treatment-as-a-state status, any request to end or modify monitoring under Water Quality Monitoring and Adaptive Management (Condition 1) at the location(s) closest to or within that tribe's reservation, along with a summary of that location's monitoring results and associated data, to date. Any comments from such tribes received by the Deputy Director on the report will be a factor in the Deputy Director's consideration of whether to approve the cessation or modification of monitoring at that location(s).

CONDITION 21. CONSULTATION REQUIREMENTS

For any condition that requires consultation with specific agencies, the Licensee may consult with additional parties (e.g., through "good neighbor" agreements or through consultation commitments under the Klamath Hydroelectric Settlement Agreement). The Licensee is particularly encouraged to consult with local agencies with expertise in siting issues and local conditions, and with tribes that have resources that may be affected by various plans or adaptive management measures. Such consultation is likely to result in plans that are better conceived and more likely to receive approval without the need for additional modification.

CONDITION 22. FILINGS AND APPROVALS

The State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may take enforcement action if the Licensee fails to provide or implement a required plan in a timely manner. If a time extension is needed to submit a report or plan for Deputy Director approval, the Licensee shall submit a written request for the extension, with justification, to the Deputy Director no later than 60 days prior to the deadline. The Licensee shall file any Deputy Director-approved time extensions with FERC.

[38] See also a February 1, 2017, letter from Robert Franklin, Division Lead, Hoopa Tribal Fisheries – Water Division to Parker Thaler, State Water Board, Division of Water Rights.

CONDITION 23. Conditions 23 to 39

The State Water Board reserves the authority to reopen this certification based on evidence that the Project may be contributing to fish passage impediment in the Hydroelectric Reach upstream of the California/Oregon Stateline.

CONDITION 24. The State Water Board reserves the authority to add to or modify the conditions of this certification to incorporate changes in technology, sampling, or methodologies.

CONDITION 25. The State Water Board shall provide notice and an opportunity to be heard in exercising its authority to add to or modify the conditions of this certification.

CONDITION 26. Notwithstanding any more specific conditions in this certification, the Project shall be operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act. The Licensee must take all reasonable measures to protect the beneficial uses of the Klamath River watershed.

CONDITION 27. Unless otherwise specified in this certification or at the request of the Deputy Director, data and/or reports shall be submitted electronically in a format accepted by the State Water Board to facilitate the incorporation of this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167.

CONDITION 28. This certification does not authorize any act which results in the unauthorized taking of a threatened, endangered, or candidate species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (ESA) (Fish & Game Code §§ 2050-2097) or the federal ESA (16 U.S.C. §§ 1531 - 1544). If a "take" will result from any act authorized under this certification or water rights held by the Licensee, the Licensee must obtain authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Licensee is responsible for meeting all applicable requirements of the ESAs for the Project authorized under this certification.

CONDITION 29. The Licensee shall submit any change to the Project, including Project operation, implementation, technology changes or upgrades, or methodology, which would have a significant or material effect on the findings, conclusions, or conditions of this certification, to the Deputy Director for prior review and written approval. The Deputy Director shall determine significance and may require consultation with state and/or federal agencies. If the Deputy Director is not notified of a change to the Project, it will be considered a violation of this certification. If such a change would also require submission to FERC, the change must first be submitted and approved by the Deputy Director.

CONDITION 30. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation is subject to any remedies, penalties, process, or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to

ensure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

CONDITION 31. In response to a suspected violation of any condition of this certification, the State Water Board or North Coast Regional Water Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports (California Water Code sections 1051, 13165,13267 and 13383).

CONDITION 32. In response to any violation of the conditions of this certification, the State Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

CONDITION 33. This certification shall not be construed as replacement or substitution for any necessary federal, state, and local Project approvals. The Licensee is responsible for compliance with all applicable federal, state, or local laws and ordinances and shall obtain authorization from applicable regulatory agencies prior to the commencement of Project activities. This certification shall terminate upon the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project, subject to prior assignment of continuing responsibilities to third parties.

CONDITION 34. Any requirement in this certification that refers to an agency whose authorities and responsibilities are transferred to or subsumed by another state or federal agency, will apply equally to the successor agency.

CONDITION 35. The Deputy Director and the Executive Officer shall be notified one week prior to the commencement of ground disturbing activities that may adversely affect water quality. Upon request, a construction schedule, and updates thereto, shall be provided to the Deputy Director and Executive Officer. The Licensee shall provide State Water Board and Regional Water Board staffs access to Project sites to document compliance with this certification.

CONDITION 36. This certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license unless the pertinent application for certification was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b) and that application for certification specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

CONDITION 37. This certification is conditioned upon total payment of any fee required in California Code of Regulations, title 23, article 4.

CONDITION 38. This certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to California Water Code, section 13330, and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing with section 3867).

CONDITION 39. A copy of this certification shall be provided to any contractor and all subcontractors conducting Project-related work, and copies shall remain in their possession at the Project site(s). The Licensee shall be responsible for work conducted by its contractor, subcontractors, or other persons conducting Project-related work.

_____ _____

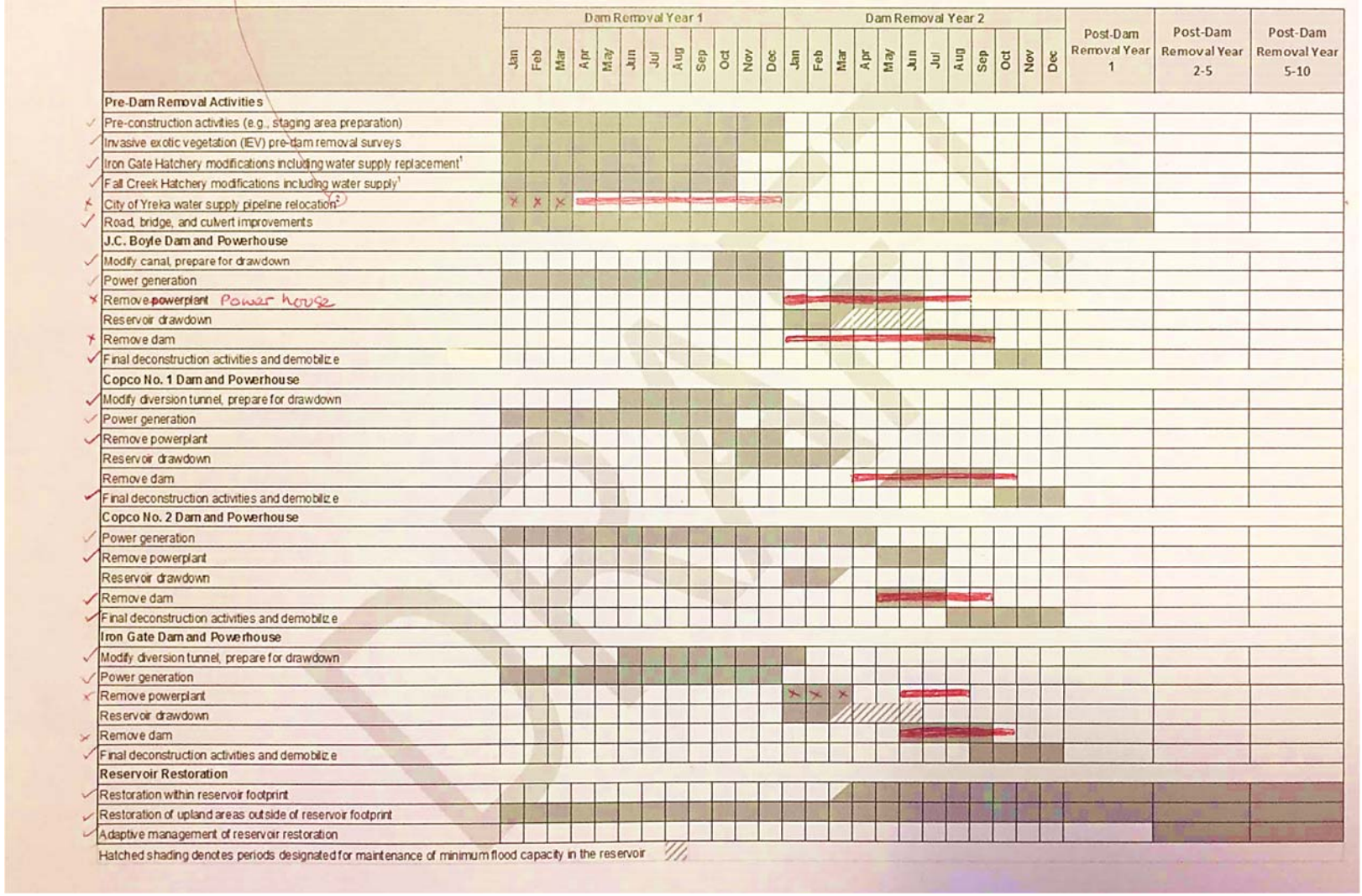
Eileen Sobeck Date
Executive Director

ATTACHMENTS

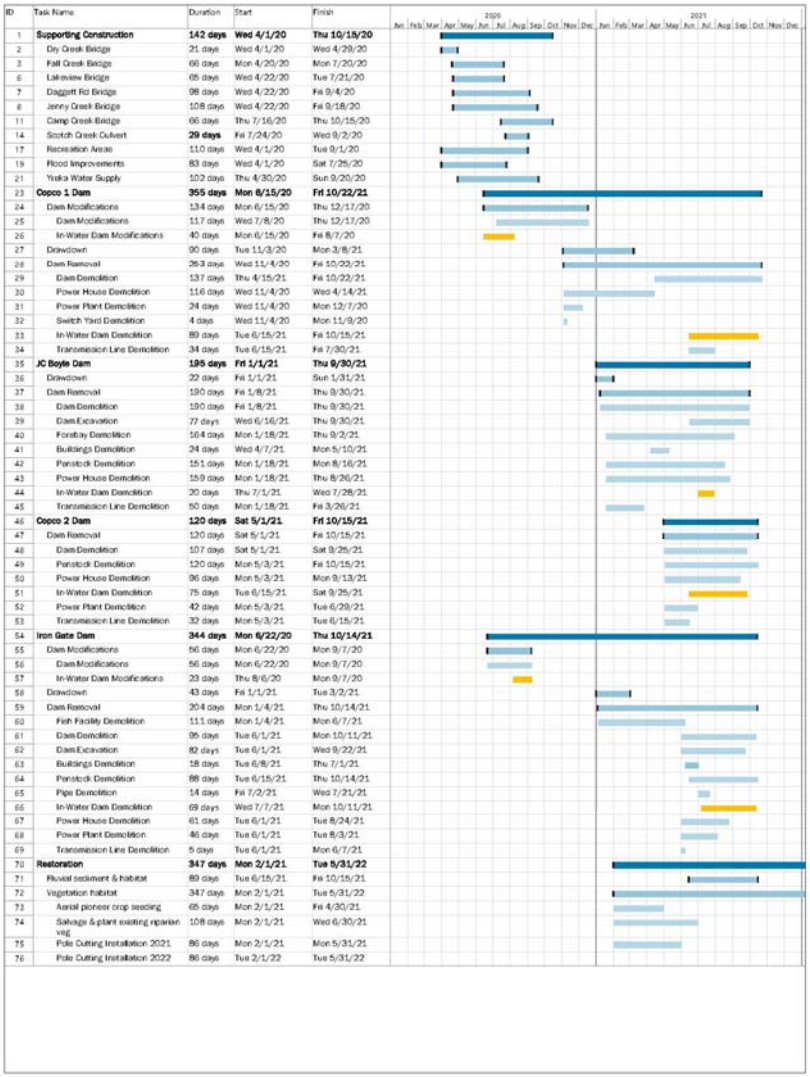
ATTACHMENT 1: KRRC'S PROPOSED PROJECT SCHEDULE [as proposed to be revised]
ATTACHMENT 1A: KRRC'S PROPOSED PROJECT SCHEDULE AS GANT CHART [new]
ATTACHMENT 2: FIGURES
Figure 1: Lower Klamath Project Location
Figure 2: Lower Klamath Project Boundary
Figure 3: J.C. Boyle Disposal Site
Figure 4: Copco No. 1 and Copco No. 2 Disposal Site
Figure 5: Iron Gate Disposal Site
ATTACHMENT 3: REFERENCES

DRAFT WATER QUALITY CERTIFICATION FOR LOWER KLAMATH PROJECT

ATTACHMENT 1: KRRC'S PROPOSED PROJECT SCHEDULE



KRRC'S PROPOSED PROJECT SCHEDULE AS GANT CHART



ID	Task Name	Duration	Start	Finish
1	**Supporting Construction**	**142 days**	**Wed 4/1/20**	**Thu 10/15/20**
2	Dry Creek Bridge	21 days	Wed 4/1/20	Wed 4/29/20
3	Fall Creek Bridge	66 days	Mon 4/20/20	Mon 7/20/20
6	Lakeview Bridge	65 days	Wed 4/22/20	Tue 7/21/20
7	Daggett Rd Bridge	98 days	Wed 4/22/20	Fri 9/4/20
8	Jenny Creek Bridge	108 days	Wed 4/22/20	Fri 9/18/20
11	Camp Creek Bridge	66 days	Thu 7/16/20	Thu 10/15/20
14	Scotch Creek Culvert	**29 days**	Fri 7/24/20	Wed 9/2/20
17	Recreation Areas	110 days	Wed 4/1/20	Tue 9/1/20
19	Flood Improvements	83 days	Wed 4/1/20	Sat 7/25/20
21	Yreka Water Supply	102 days	Thu 4/30/20	Sun 9/20/20
23	**Copco 1 Dam**	**355 days**	**Mon 6/15/20**	**Fri 10/22/21**
24	Dam Modifications	134 days	Mon 6/15/20	Thu 12/17/20
25	Dam Modifications	117 days	Wed 7/8/20	Thu 12/17/20
26	In-Water Dam Modifications	40 days	Mon 6/15/20	Fri 8/7/20
27	Drawdown	90 days	Tue 11/3/20	Mon 3/8/21
28	Dam Removal	263 days	Wed 11/4/20	Fri 10/22/21
29	Dam Demolition	137 days	Thu 4/15/21	Fri 10/22/21
30	Power House Demolition	116 days	Wed 11/4/20	Wed 4/14/21
31	Power Plant Demolition	24 days	Wed 11/4/20	Mon 12/7/20
32	Switch Yard Demolition	4 days	Wed 11/4/20	Mon 11/9/20
33	In-Water Dam Demolition	89 days	Tue 6/15/21	Fri 10/15/21
34	Transmission Line Demolition	34 days	Tue 6/15/21	Fri 7/30/21
35	**JC Boyle Dam**	**195 days**	**Fri 1/1/21**	**Thu 9/30/21**
36	Drawdown	22 days	Fri 1/1/21	Sun 1/31/21
37	Dam Removal	190 days	Fri 1/8/21	Thu 9/30/21
38	Dam Demolition	190 days	Fri 1/8/21	Thu 9/30/21
39	Dam Excavation	77 days	Wed 6/16/21	Thu 9/30/21
40	Forebay Demolition	164 days	Mon 1/18/21	Thu 9/2/21
41	Buildings Demolition	24 days	Wed 4/7/21	Mon 5/10/21
42	Penstock Demolition	151 days	Mon 1/18/21	Mon 8/16/21
43	Power House Demolition	159 days	Mon 1/18/21	Thu 8/26/21
44	In-Water Dam Demolition	20 days	Thu 7/1/21	Wed 7/28/21
45	Transmission Line Demolition	50 days	Mon 1/18/21	Fri 3/26/21
46	**Copco 2 Dam**	**120 days**	**Sat 5/1/21**	**Fri 10/15/21**
47	Dam Removal	120 days	Sat 5/1/21	Fri 10/15/21
48	Dam Demolition	107 days	Sat 5/1/21	Sat 9/25/21
49	Penstock Demolition	120 days	Mon 5/3/21	Fri 10/15/21
50	Power House Demolition	96 days	Mon 5/3/21	Mon 9/13/21
51	In-Water Dam Demolition	75 days	Tue 6/15/21	Sat 9/25/21
52	Power Plant Demolition	42 days	Mon 5/3/21	Tue 6/29/21
53	Transmission Line Demolition	32 days	Mon 5/3/21	Tue 6/15/21
54	**Iron Gate Dam**	**344 days**	**Mon 6/22/20**	**Thu 10/14/21**
55	Dam Modifications	56 days	Mon 6/22/20	Mon 9/7/20
56	Dam Modifications	56 days	Mon 6/22/20	Mon 9/7/20
57	In-Water Dam Modifications	23 days	Thu 8/6/20	Mon 9/7/20
58	Drawdown	43 days	Fri 1/1/21	Tue 3/2/21
59	Dam Removal	204 days	Mon 1/4/21	Thu 10/14/21
60	Fish Facility Demolition	111 days	Mon 1/4/21	Mon 6/7/21
61	Dam Demolition	95 days	Tue 6/1/21	Mon 10/11/21
62	Dam Excavation	82 days	Tue 6/1/21	Wed 9/22/21
63	Buildings Demolition	18 days	Tue 6/8/21	Thu 7/1/21
64	Penstock Demolition	88 days	Tue 6/15/21	Thu 10/14/21
65	Pipe Demolition	14 days	Fri 7/2/21	Wed 7/21/21
66	In-Water Dam Demolition	69 days	Wed 7/7/21	Mon 10/11/21
67	Power House Demolition	61 days	Tue 6/1/21	Tue 8/24/21
68	Power Plant Demolition	46 days	Tue 6/1/21	Tue 8/3/21
69	Transmission Line Demolition	5 days	Tue 6/1/21	Mon 6/7/21
70	**Restoration**	**347 days**	**Mon 2/1/21**	**Tue 5/31/22**
71	Fluvial sediment & habitat	89 days	Tue 6/15/21	Fri 10/15/21
72	Vegetation habitat	347 days	Mon 2/1/21	Tue 5/31/22
73	Aerial pioneer crop seeding	65 days	Mon 2/1/21	Fri 4/30/21
74	Salvage & plant existing riparian veg	108 days	Mon 2/1/21	Wed 6/30/21
75	Pole Cutting Installation 2021	86 days	Mon 2/1/21	Mon 5/31/21
76	Pole Cutting Installation 2022	86 days	Tue 2/1/22	Tue 5/31/22

ATTACHMENT 2: FIGURES

Figure 1: Lower Klamath Project Location

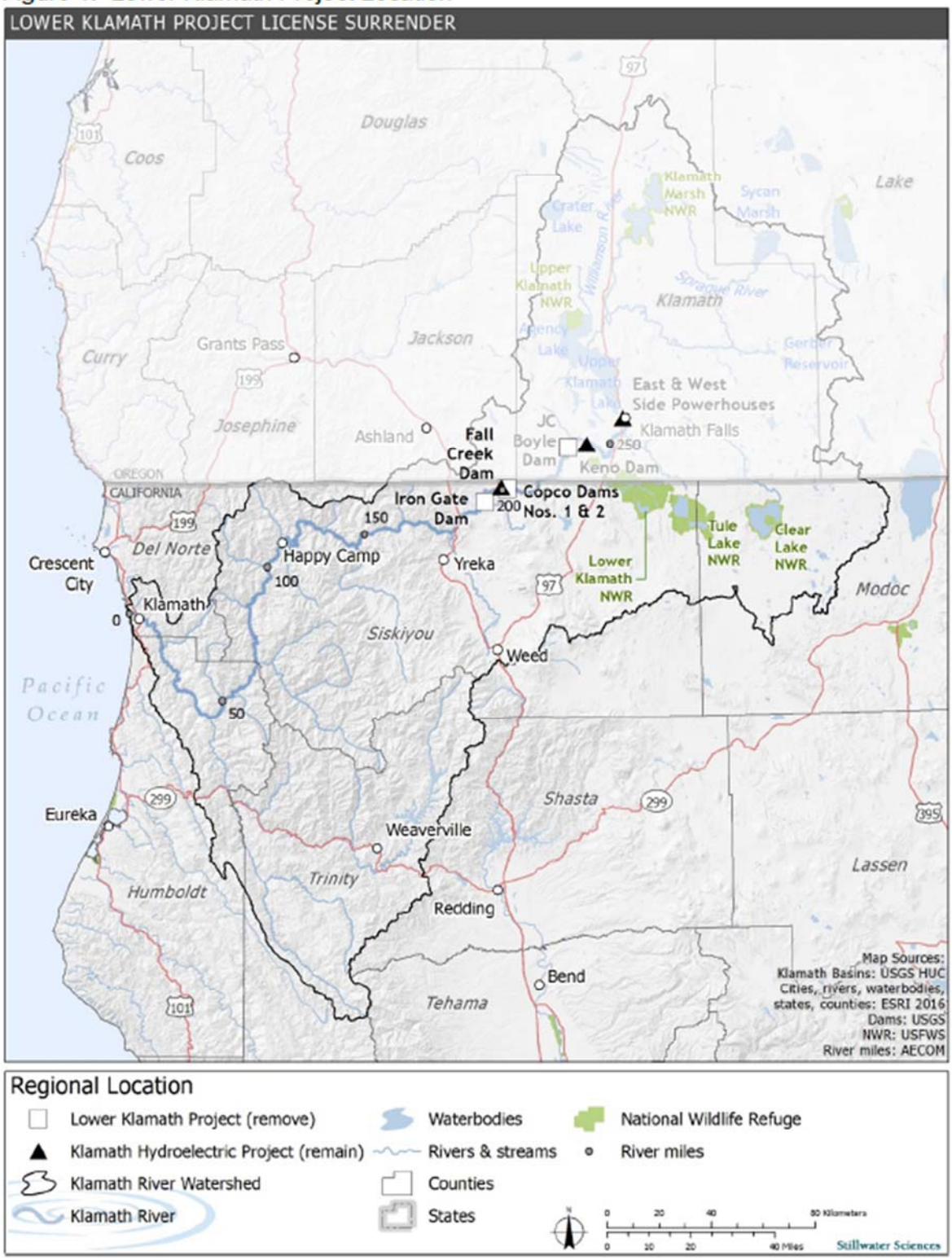


Figure 2: Lower Klamath Project Boundary

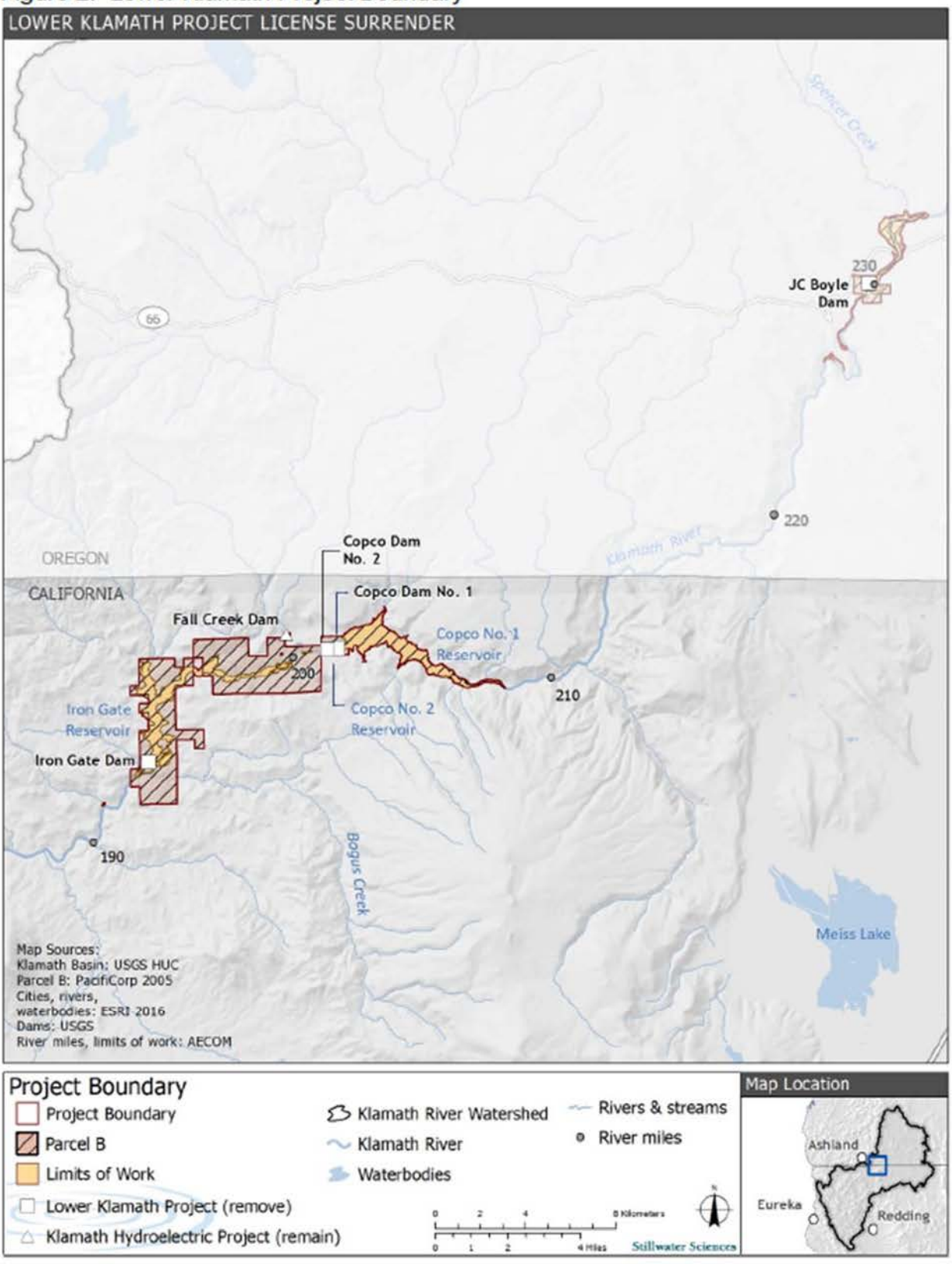


Figure 3: J.C. Boyle Disposal Site (shown in purple)

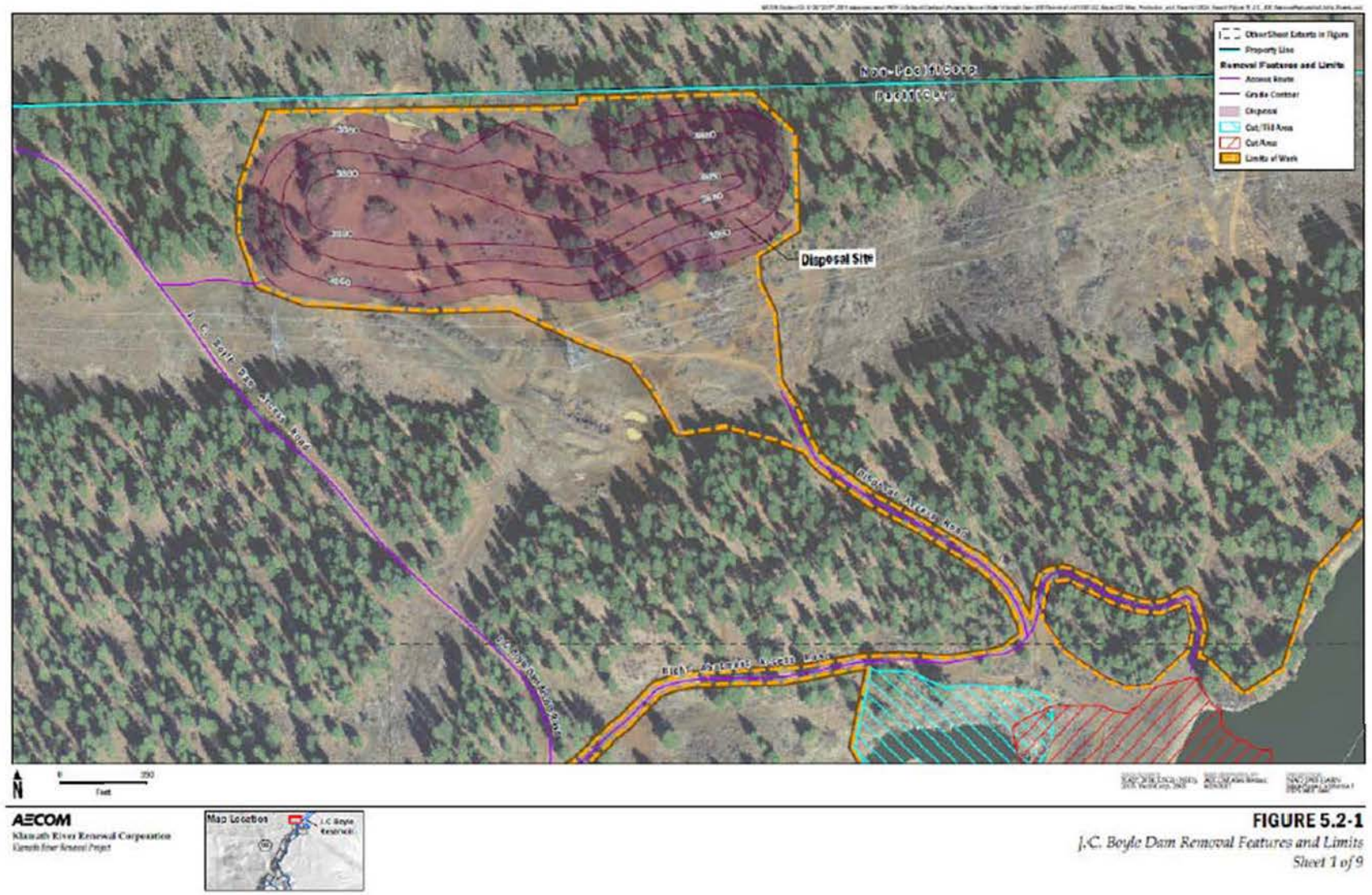
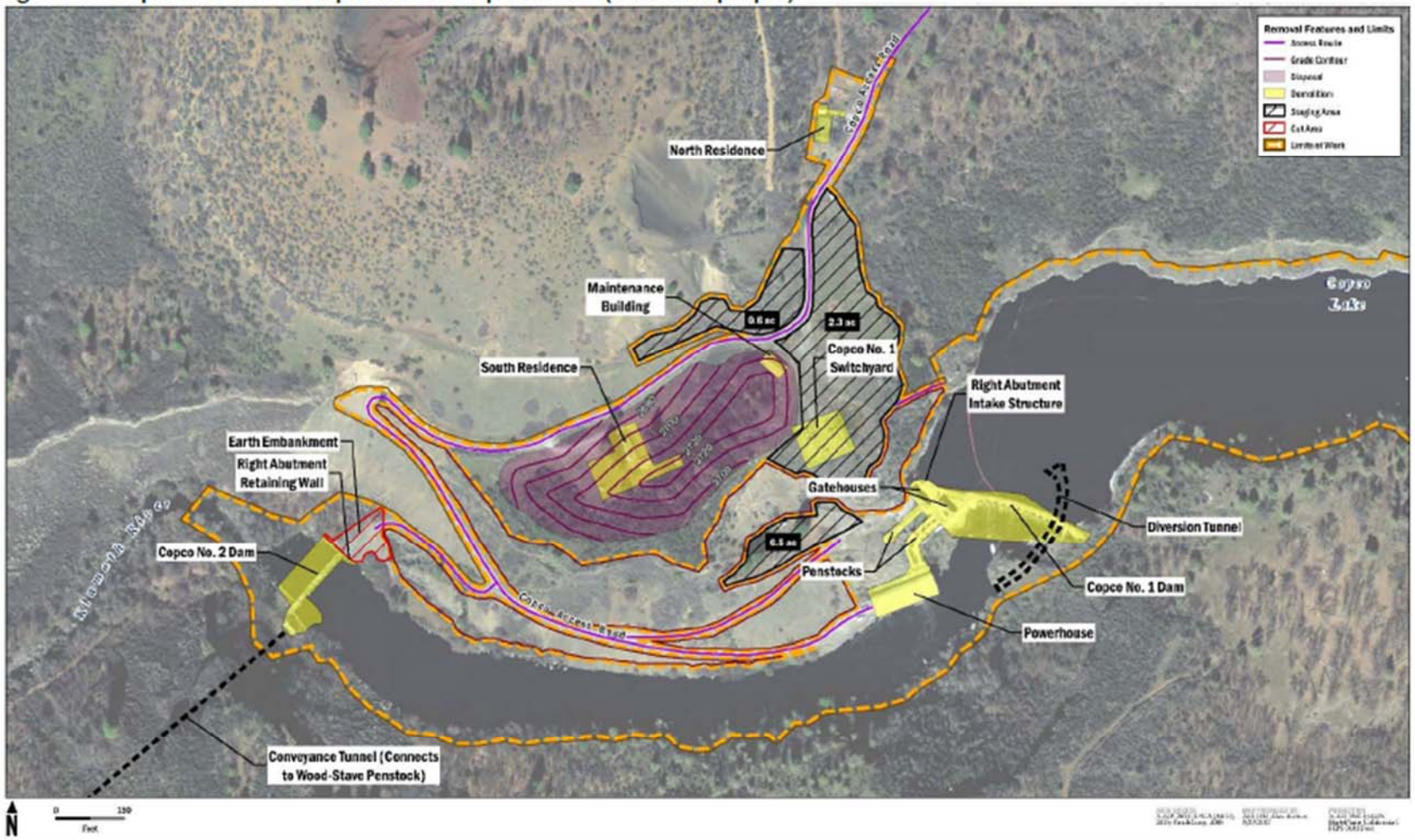


Figure 4: Copco No. 1 and Copco No. 2 Disposal Site (shown in purple)



AECOM
Klamath River Renewal Corporation
Klamath River Renewal Project

FIGURE 5.3-1
Copco No. 1 and Copco No. 2 Dams Removal Features and Limits
Sheet 1 of 4

Figure 5: Iron Gate Disposal Site (shown in purple)

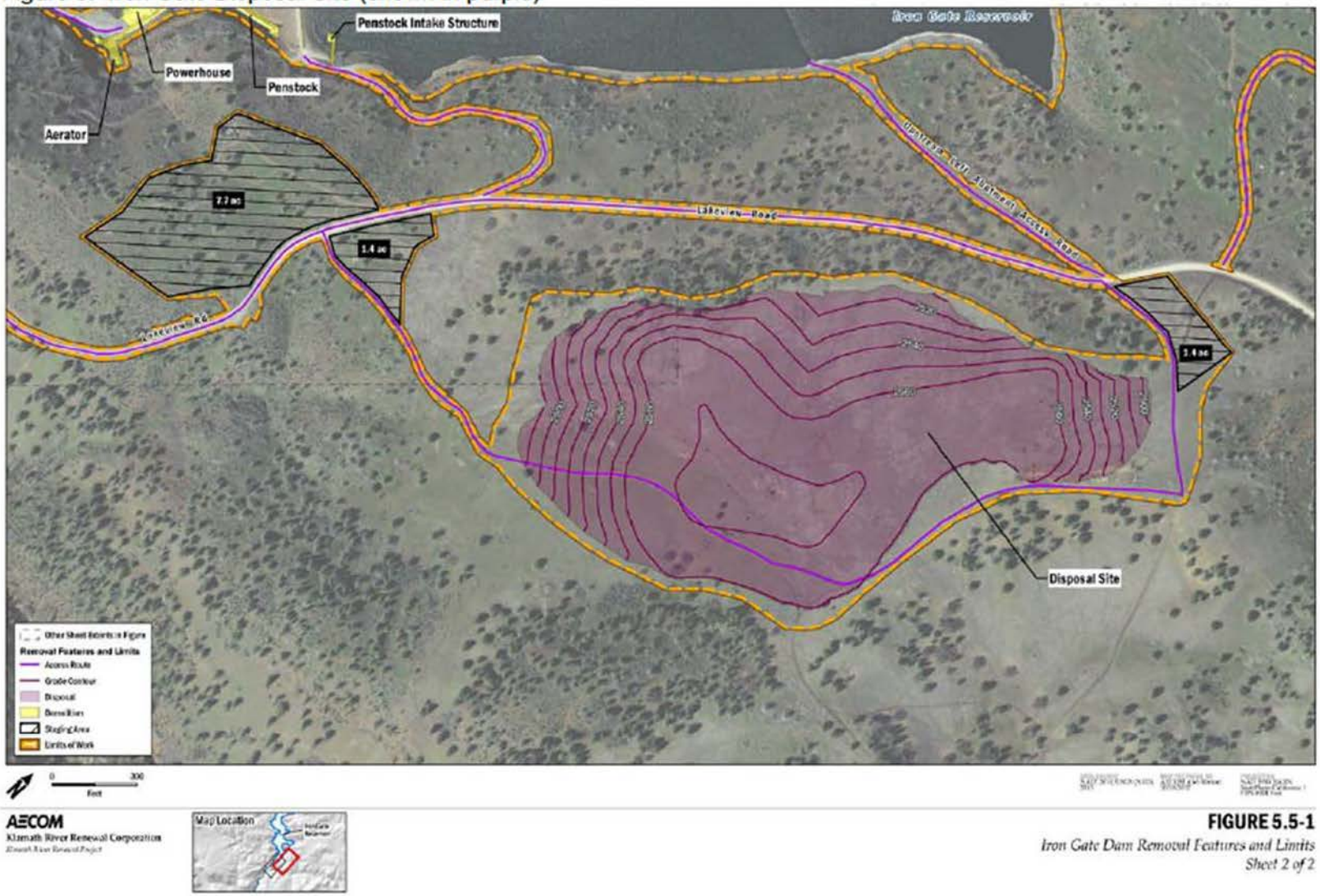


FIGURE 5.5-1
Iron Gate Dam Removal Features and Limits
Sheet 2 of 2

ATTACHMENT 3: REFERENCES

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