



November 17, 2020

VIA ELECTRONIC FILING

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Amended Application for Surrender of License for Major Project and Removal of Project Works and Request for Expedited Review; FERC Project Nos. 14803-001 and 2082-063

Dear Secretary Bose:

The Klamath River Renewal Corporation (Renewal Corporation) and PacifiCorp hereby submit this Amended Application for Surrender of License for Major Project and Removal of Project Works, Lower Klamath Project, FERC No. 14803 (Amended Surrender Application). The Renewal Corporation and PacifiCorp respectfully request that, on or before December 15, 2020, the Federal Energy Regulatory Commission (Commission or FERC) issue a notice inviting comments, interventions, and protests on the Amended Surrender Application, commence environmental review of this application, and expedite its consideration of this application so that the four lowermost dams on the Klamath River can be removed and the citizens of California and Oregon can enjoy the long-awaited benefits of their settlement.

This filing also provides the Commission with an explanation of actions taken by the parties to the Amended Klamath Hydroelectric Settlement Agreement (KHSA) to build on the September 23, 2016, Joint Application for Approval of License Amendment and License Transfer, Project Nos. 2082-062 & 14803-001 (Accession Nos. 20160923-5367 and 20160923-5368) and the Commission's July 16, 2020, *Order Approving Partial Transfer of License, Lifting Stay of Order Amending License, and Denying Motion for Clarification and Motion to Dismiss*, 172 FERC ¶ 61,062 (License Transfer Order) in implementing their settlement. This includes a proposed pathway for the States of Oregon and California to become co-licensees with the Renewal Corporation, removing PacifiCorp from the license upon the Commission's approval of this Amended Surrender Application. These actions are being taken in accordance with a Memorandum of Agreement (MOA) entered into by PacifiCorp, the Karuk Tribe, the Yurok Tribe, the States,

and the Renewal Corporation on November 17, 2020. The MOA is attached to the Amended Surrender Application at Exhibit D-10 for the Commission's reference and information.

Amended Surrender Application

The MOA states the parties' commitment to the priority and importance of filing the Amended Surrender Application and seeking expedited review to ensure that the mutually agreed to project milestones remain on track.¹ The Renewal Corporation submits this Amended Surrender Application as lead applicant and with PacifiCorp as co-applicant. The benefits to the Klamath Basin to be achieved from the implementation of this settlement are long overdue. The Renewal Corporation has a plan, schedule and resources in place to implement the settlement. Delay in obtaining the necessary approvals for dam removal jeopardizes this plan and schedule and will increase project cost.

This Amended Surrender Application provides Commission Staff with an unprecedented level of detail to commence its review. The application describes a shovel-ready scope of work for decommissioning the Lower Klamath Project based on 60% design specifications and a record that incorporates information gleaned from years of technical, environmental and regulatory analyses. The application includes new studies and analyses that update relevant portions of two prior National Environmental Policy Act (NEPA) environmental impact statements and a prior California Environmental Quality Act (CEQA) environmental impact report. The Amended Surrender Application is ready for hearing and environmental review. The Amended Surrender Application is comprised of the following:

- **Amended Surrender Application:** A fully amended and restated application consistent with the requirements of 18 C.F.R. Section 4.51, with updates to the initial statement and to the information required by 18 C.F.R. Section 4.32(a), and a proposed procedural schedule.
- **Exhibit A (Project Description):** Including **Exhibit A-1** Definite Decommissioning Plan (November 2020) and **Exhibit A-2** Definite Decommissioning Plan 60% Design Specifications (February 2020).
- **Exhibit B (Project Operation and Resource Utilization):** Including **Exhibit B-1** KHSa Implementation Report (April 2020) and **Exhibit B-2** Agreement for the Operation and Maintenance of the Lower Klamath Project (September 20, 2017).
- **Exhibit C (Proposed Construction Schedule):** Including **Exhibit C-1** Klamath River Reconstruction Project - Implementation Work Schedule (July 2020).

¹ See MOA at ¶ 1 ("KRRC and PacifiCorp will file an amended license surrender application (ALSA) with FERC within seven days of execution of this Implementing Agreement."); see also *id.*, Attachment A.

- **Exhibit D (Statement of Costs and Financing):** Including **Exhibit D-1** Estimate of Project Cost (July 2019), **Exhibit D-2** Guaranteed Maximum Price Commitments (February 2020), **Exhibit D-3** Letters of Sufficiency (February 2020), **Exhibit D-4** Orders of the Public Utility Commission of Oregon (January 24, 2017; May 23, 2019), **Exhibit D-5** Oregon Funding Agreements (January 2017; October 2016), **Exhibit D-6** Orders of the California Public Utilities Commission (December 4, 2017; July 10, 2019), **Exhibit D-7** CPUC Funding Agreement (December 2017), **Exhibit D-8** California Natural Resources Agency Funding Agreement (October 2016; December 2018), **Exhibit D-9** Risk Register (August 2020) and **Exhibit D-10** MOA (November 17, 2020).
- **Exhibit E (Environmental Report):** Including **Exhibit E-1** Lower Klamath Project Exhibit E (July 2020). Exhibit E-1 incorporates studies and analyses of the proposed action undertaken in connection with the Oregon and California state environmental review processes in support of the issuance of section 401 water quality certifications. This includes the 60% Design Report and 60% Design Drawings, the 2018 Definite Plan Report (KRRRC 2018), the State of California Water Resources Control Board's Draft and Final Environmental Impact Report and CEQA Findings and Statements (SWRCB 2020a, 2020b), and the State of Oregon Department of Environmental Quality's Evaluation and Findings Report (ODEQ 2018b). **Exhibit E-1** incorporates and updates relevant portions of FERC's *Final Environmental Impact Statement for Relicensing of the Klamath Hydroelectric Project FERC Project No. 2082-027* (2007) and the U.S. Department of the Interior's and California Department of Fish and Wildlife's *Klamath Facilities Removal Environmental Impact Statement / Environmental Report* (2012).

Exhibit A-2 to this application contains the Renewal Corporation's 60% design specifications for the Definite Decommissioning Plan. **Exhibit A-2** contains sensitive dam safety and construction information that qualifies as Critical Energy/Electric Infrastructure Information (CEII) under the Commission's rules, and the Renewal Corporation and PacifiCorp are therefore asking that Exhibit A-2 be afforded CEII treatment. **Exhibit A-2** is being separately filed in this proceeding pursuant to 18 C.F.R. section 388.113. A public version of **Exhibit A-2** is appended to this Amended Surrender Application. A proposed form of protective agreement was filed in FERC Nos. P-2082-063 and P-14803-001 on December 1, 2017 (FERC accession #20171201-5385) and is referenced here for purposes of 18 C.F.R. section 388.113(d)(1)(iii).

Memorandum of Agreement

The MOA reflects the ongoing commitment and resolve of the parties to the KHSA to physically remove the Lower Klamath Project and achieve a free-flowing condition and

volitional fish passage, site remediation and restoration.² On July 16, 2020, the Commission issued its License Transfer Order. The License Transfer Order confirmed that the Renewal Corporation has the capacity to carry out its proposed obligations as licensee of the Lower Klamath Project.³ On the basis of a public interest finding, the Commission approved a partial transfer authorizing the Renewal Corporation and PacifiCorp to become co-licensees.

The License Transfer Order recognized that requiring PacifiCorp to accept the obligations of co-licensee for purposes of license surrender “represents a significant change from what the parties envisioned” when they entered into the KHSA.⁴ The License Transfer Order also stated that the parties “may elect to amend their arrangement” to provide resources that are “sufficient to cover the costs of decommissioning.”⁵ In response to the License Transfer Order, the parties to the KHSA met, conferred and determined they needed to provide FERC with further assurances that “what the parties envisioned” could be implemented consistent with the public interest. The MOA provides the Commission with these further assurances.

The MOA contemplates, among other things, that the Renewal Corporation, PacifiCorp, and the States will prepare a new license transfer application requesting a transfer of the FERC license, which will propose to remove PacifiCorp from the license for the Lower Klamath Project and add the States and KRRC as co-licensees for the purposes of surrender of the Lower Klamath license (New Transfer Application). The New Transfer Application will be filed by January 16, 2021. The New Transfer Application will notify FERC that PacifiCorp and KRRC are not accepting co-licensee status under the License Transfer Order, and instead are seeking the license transfer outcome to be described in the New Transfer Application. Removing PacifiCorp as the project licensee and adding the States and the Renewal Corporation as co-licensees for purpose of license surrender will address the “unique public interest concerns” cited in the License Transfer Order for circumstances when questions arise as to whether a transferee possesses the “legal, technical, and financial capacity to safely remove project facilities and adequately restore project lands.”⁶ The approach described herein is also guided by the Commission’s Policy Statement on *Project Decommissioning at Relicensing* and prior Commission precedent that depict the public interest concern referred to in the License Transfer Order as a risk that “responsibility to

² KHSA § 1.4 (“Facilities Removal” means physical removal of all or part of each of the Facilities to achieve at a minimum a free-flowing condition and volitional fish passage, site remediation and restoration, including previously inundated lands, measures to avoid or minimize adverse downstream impacts, and all associated permitting for such actions.”).

³ License Transfer Order at P 71.

⁴ *Id.* at P 46.

⁵ *Id.*

⁶ *Id.* at P 67.

decommission a project or restore project lands may fall to federal or state authorities.”⁷ Here, the responsibilities for license surrender proposed by the New Transfer Application will not “fall” to the States; rather, the States will assume the responsibilities of co-licensees for purposes of surrender. Upon the Commission’s issuance of a new transfer order and surrender order, followed by acceptance of the license transfer by the Renewal Corporation and the States, the Renewal Corporation will implement its Definite Decommissioning Plan⁸ (as approved by the Commission) and the States and PacifiCorp will provide the “further assurances” described below that the Commission has appropriately determined to be in the public interest.

The MOA provides that, if such a license transfer is approved by the Commission, the States and the Renewal Corporation will accept the license transfer order making the Renewal Corporation and States co-licensees for the Lower Klamath Project unless the States and PacifiCorp, in consultation with the Karuk and Yurok Tribes, mutually agree to reject the license surrender order on the basis that the terms of the order, including terms of any federal agency consultation concerning the order, are significantly outside the norm for FERC orders involving major project construction or deconstruction in a manner that creates significant financial risk to the States or PacifiCorp. A license transfer to the States (as co-licensees with the Renewal Corporation) is in line with the Commission’s orders and the settlement reached for decommissioning the Edwards Hydroelectric Project No. 2389. In *Edwards*, the Commission approved the transfer of the license to the State of Maine to carry out project decommissioning. *Edwards Mfg. Co., Inc.*, 84 FERC ¶ 61,227 (1998). Under the Abeyance Order (which approved consideration of this surrender application as an alternative to the PacifiCorp’s pending relicense application),⁹ and applying the precedent established by the Commission in *Arizona Public Service Co.*, a proposed license transfer to the States upon issuance of the surrender order does not conflict with 18 C.F.R. section 4.32(j) because, as the Commission noted in that case, the circumstances that this rule was meant to address are not presented.¹⁰

The New Transfer Application will also advance the functional objectives of the License Transfer Order. Specifically, under the KHSA, as further interpreted by the MOA, PacifiCorp will remain as sole licensee during the license surrender process; therefore, the

⁷ *Id.* at P 67; *see also*, Policy Statement on *Project Decommissioning at Relicensing*, 60 Fed. Reg. 339, 346 (Jan. 4, 1995); *see also* FERC Stats. & Regs. ¶ 31,011, 31,232-33 (1994); *Fraser Papers Inc.*, 87 FERC ¶ 61,177, *order on reh’g*, 89 FERC ¶ 61,286 (1999).

⁸ *See* Amended Surrender Application, Exhibit A.

⁹ *See PacifiCorp*, 155 FERC ¶ 61,271 at p. 13 (2016) (Abeyance Order) (“[W]e will hold the relicensing proceeding in abeyance, pending our determination on the license transfer and surrender applications that the Amended Settlement Agreement provides will be filed with the Commission on or around July 1, 2016.”).

¹⁰ *See Arizona Pub. Serv. Co.*, 97 FERC ¶ 61,315, at p. 62,450 (2001) (“[A]pplying Section 4.32(j) to the situation here, we agree with APS that our traditional concerns are absent.”).

Commission can still depend upon PacifiCorp resources and experience as a project operator and PacifiCorp's technical support of the license surrender application. Additionally, with the States as co-licensees with the Renewal Corporation following issuance of the surrender order, the Commission can be reassured that the two States support the project, and it is also consistent with the License Transfer Order's statement that "unique public interest concerns" could result in the responsibility for safely removing the dams and adequately restoring public lands falling to state agencies. The removal of PacifiCorp as licensee under these circumstances advances the Commission policies of favoring settlements¹¹ and approving license surrender orders that advance state interests.¹²

The MOA also provides additional financial commitments to implementation of the settlement. To address the unlikely event that the cost of dam removal will exceed the KHSA state cost cap, PacifiCorp and the States have agreed to create an additional contingency fund. This additional contingency is intended to express the full commitment by PacifiCorp and States to dam removal. The additional contingency funding will be in the amount of \$45 million to ensure that dam removal will occur and be completed. The MOA signatories believe that funding for Facilities Removal beyond the KHSA state cost cap is unlikely to be needed but have agreed that this additional contingency fund provides a clear and definitive commitment of resources that will ensure dam removal is completed. PacifiCorp and the States will each contribute \$15 million for this additional contingency fund and share any cost overruns that may occur over this amount equally.

Should FERC require any further information, please direct any such requests to counsel as identified in the Amended Surrender Application.

Respectfully submitted,

s/ Markham A. Quehrn

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¹¹ Policy Statement on Hydropower Licensing Settlements, 116 FERC ¶ 61,270 (2006).
¹² Policy Statement on *Project Decommissioning at Relicensing*, *supra* at note 7.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Klamath River Renewal Corporation
PacifiCorp**

Project No. 14803

**AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR
MAJOR PROJECT AND REMOVAL OF PROJECT WORKS AND
REQUEST FOR EXPEDITED REVIEW**

SUMMARY OF APPLICATION

I. Introduction.

The Klamath River Renewal Corporation (Renewal Corporation) and PacifiCorp hereby amend the “Application for Surrender of License for Major Project and Removal of Project Works” (Sept. 23, 2016), Accession no. 20160923-5370 (Initial Surrender Application). This Amended Surrender Application includes the Renewal Corporation’s Definite Decommissioning Plan¹ for the physical removal of the Lower Klamath Project² (Project) to achieve a free-flowing condition and volitional fish passage, site remediation and restoration, and measures to avoid or minimize adverse downstream impacts (Proposed Action). The Definite Decommissioning Plan is based on 60% design specifications³ developed by a best-in-industry team that is ready to commence work. PacifiCorp provides its consent and its technical support to this Amended Surrender Application.

The Renewal Corporation and PacifiCorp respectfully request that, on or before December 15, 2020, the Commission (a) issue a notice inviting comments, interventions, and protests on the Amended Surrender Application, (b) commence environmental review of this application, and (c) expedite its consideration of this application so that the Klamath dams can be removed and the citizens of California and Oregon can enjoy the long-awaited benefits of their settlement.

II. Elements of Amended Application.

This Amended Surrender Application provides the following information.

Explanatory Statement. The Explanatory Statement describes the purpose of this amendment and the actions taken by the Renewal Corporation since September 2016 to prepare this Amended Surrender Application for hearing and environmental review.⁴ The Explanatory Statement includes the Renewal Corporation’s and PacifiCorp’s request for certain procedural determinations with respect to

¹ See Exhibit A-1 to this amended application.

² FERC No. 14803.

³ See Exhibit A-2 to this amended application.

⁴ Much of this information was provided to the Commission in the license amendment and transfer proceeding, FERC Nos. P-2082-062; P-14803-000 (License Amendment and Transfer Proceeding). Relevant excerpts from the record of the License Amendment and Transfer Proceeding are referenced below at Table ES-2 and incorporated herein in support of the Amended Surrender Application.

this Amended Surrender Application and a proposed procedural schedule for expedited review leading to final action on this application on or before February 15, 2022. The Explanatory Statement also provides the Commission with an update on the actions taken by the parties to the Amended Klamath Hydroelectric Settlement Agreement (KHSA)⁵ to build on the 2016 License Transfer Application and License Transfer Order⁶ and implement their settlement.

Initial Statement. The Initial Statement, as required by 18 C.F.R. section 4.51(a), is updated to reflect changes that have occurred since September 2016. The Initial Statement includes the following attachments:

- Attachment A** Bylaws of Klamath River Renewal Corporation (September 26, 2019).
- Attachment B** Oregon Department of Environmental Quality Water Quality Certification (September 7, 2018).
- Attachment C** Oregon Department of Environmental Quality Water Quality Certification Evaluation and Findings Report (September 2018).
- Attachment D** Oregon Department of Environmental Quality Land Use Compatibility Statement (April 13, 2018).
- Attachment E** Klamath County, Oregon, Memorandum of Understanding (March 2019).
- Attachment F** Memorandum of Understanding between California Department of Fish and Wildlife and the Klamath River Renewal Corporation (September 2020).

Information required by 18 C.F.R. § 4.32(a). Information required by 18 C.F.R. section 4.32(a) is updated to reflect changes that have occurred since September 2016.

Exhibit A: Project Description. Exhibit A is amended to include the Renewal Corporation's Definite Decommissioning Plan for implementation of the Proposed Action. This exhibit also updates the description of the Project works to conform with the Commission's "Order Amending License and Deferring Consideration of Transfer Application", 162 FERC ¶ 61,236 (2018) (Order Amending License). Exhibit A includes the following sub-exhibits:

- Exhibit A-1** Definite Decommissioning Plan (November 2020).
- Exhibit A-2** Definite Decommissioning Plan 60% Design Specifications (February 2020).

The 60% Design Specifications were revised to reflect value engineering and other refinements recommended by the Renewal Corporation's contractors, Kiewit Infrastructure West Co. (Kiewit), under contract to perform dam removal work, and Resource Environmental Solutions LLC (RES)

⁵ The KHSA was submitted to the record of the License Amendment and Transfer Proceeding at FERC Accession no. 20170623-5103 at Exhibit A, Attachment F and is incorporated by reference in this proceeding (see Table ES-2 below).

⁶ *Order Approving Partial Transfer of License, Lifting Stay of Order Amending License, and Denying Motion for Clarification and Motion to Dismiss*, 172 FERC ¶ 61,062 (July 16, 2020) ("License Transfer Order").

under contract to perform habitat restoration work.⁷

Exhibit B: Project Operation and Resource Utilization. Exhibit B is amended to include the most recent KHSA Implementation Report (April 2020) and to provide the “Agreement for the Operation and Maintenance of the Lower Klamath Project,” September 20, 2017. This agreement provides for the ongoing operation and maintenance of the Project by PacifiCorp until the removal of that facility is imminent. Exhibit B includes the following sub-exhibits:

Exhibit B-1 KHSA Implementation Report (April 2020).

Exhibit B-2 Agreement for the Operation and Maintenance of the Lower Klamath Project (September 20, 2017).

Exhibit C: Proposed Construction Schedule. Exhibit C is updated to provide a construction schedule for the Proposed Action. This construction schedule is based on the 60% Design Specifications. Exhibit C includes the following sub-exhibit:

Exhibit C-1 Klamath River Reconstruction Project - Implementation Work Schedule (July 2020).

Exhibit D: Statement of Costs and Financing. Exhibit D provides a budget for the Proposed Action. The budget is based on guaranteed maximum price commitments from Kiewit and RES to perform all work required to implement the Definite Decommissioning Plan. The exhibit includes third-party analyses as to the sufficiency of the Renewal Corporation’s financial resources; summary of additional financial commitments by the States and PacifiCorp reflected in a memorandum of agreement among certain parties to the KHSA; the Renewal Corporation’s funding agreements with California Public Utilities Commission (CPUC) and the Public Utility Commission of Oregon (OPUC) for the disbursement of customer surcharges; orders issued by the CPUC and the OPUC relevant to these funding agreements; the Renewal Corporation’s agreement with the California Natural Resources Agency (CNRA) for the disbursement of bond proceeds; and the Renewal Corporation’s Risk Management Plan. Exhibit D includes the following sub-exhibits:

Exhibit D-1 Estimate of Project Cost (July 2019).

Exhibit D-2 Guaranteed Maximum Price Commitments (February 2020).

Exhibit D-3 Letters of Sufficiency (February 2020).

Exhibit D-4 Orders of the OPUC (January 24, 2017; May 23, 2019).

Exhibit D-5 Oregon Funding Agreements (January 2017; October 2016).

Exhibit D-6 Orders of the CPUC (December 4, 2017; July 10, 2019).

Exhibit D-7 CPUC Funding Agreement (December 2017).

Exhibit D-8 California Natural Resources Agency Funding Agreements

⁷ On September 18, 2020, the Renewal Corporation provided 90% Design Specifications to the Lower Klamath Project Board of Independent Consultants (BOC) for informal review. Concurrent with the filing of this Amended Surrender Application, the Renewal Corporation is requesting formal review of the 90% Design Specifications by the BOC, FERC and the California Division of Safety of Dams (DSOD). The Amended Surrender Application will be updated (as needed) on February 26, 2021 to true-up the Definite Decommissioning Plan with the 90% Design Specifications and any comments received from the BOC, FERC and DSOD.

(October 2016; December 2018).
Exhibit D-9 Risk Register (August 2020).
Exhibit D-10 Memorandum of Agreement (November 17, 2020).

Exhibit E: Environmental Report. Exhibit E updates and supersedes the Exhibit E filed with the Initial Surrender Application. Sub-exhibit E-1 incorporates new studies and analyses of the Proposed Action, most recently studies and analyses undertaken in connection with the Oregon and California state environmental review process in support of the issuance of section 401 water quality certifications. This includes the 60% Design Report and 60% Design Drawings, the 2018 Definite Plan Report (KRRC 2018), the State of California Water Resources Control Board’s Draft and Final Environmental Impact Report and California Environmental Quality Act (CEQA) Findings and Statements (SWRCB 2020a, 2020b), and the State of Oregon Department of Environmental Quality’s Evaluation and Findings Report (ODEQ 2018b). These studies and analyses update relevant portions of two prior National Environmental Policy Act (NEPA) environmental impact statements and a prior CEQA environmental report.⁸ Exhibit E includes all of the information required by 18 C.F.R. section 4.51(f). Exhibit E provides an environmental record that is more than sufficient for the Commission to commence environmental review of this application. Exhibit E includes the following sub-exhibit:

Exhibit E-1 Lower Klamath Project Exhibit E (July 2020).

The Definite Decommissioning Plan includes sixteen (16) management plans that incorporate management measures drawn from the Oregon and California Water Quality Certifications, the California FEIR, consultations with federal agencies, tribal nations, state and local governments and other stakeholders, and the anticipated terms and conditions of the USFWS and NMFS Section 7 Biological Opinion. These measures and plans are listed at Tables 3-3 and 3-2 of Exhibit E-1.

⁸ FERC *Final Environmental Impact Statement for Relicensing of the Klamath Hydroelectric Project* FERC Project No. 2082-027 (2007); U.S. Department of Interior and California Department of Fish and Wildlife *Klamath Facilities Removal Environmental Impact Statement / Environmental Report* (2012).

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Klamath River Renewal Corporation
PacifiCorp**

Project No. 14803

**AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR
MAJOR PROJECT AND REMOVAL OF PROJECT WORKS AND
REQUEST FOR EXPEDITED REVIEW**

EXPLANATORY STATEMENT

I. Purpose of Amendment and Request for Expedited Review.

The purpose of this Amended Surrender Application is to provide the Commission with a surrender and removal proposal that is ready for hearing on the merits and environmental review. This Amended Surrender Application is submitted consistent with long-standing Commission precedent for consideration of settlement proposals that provide the Commission with license surrender as an alternative to relicensing.⁹ The Renewal Corporation and PacifiCorp now ask the Commission to proceed with expedited review of this application as an alternative to PacifiCorp's New License Application.¹⁰ The Renewal Corporation and PacifiCorp respectfully request that, on or before December 15, 2020, the Commission (a) issue a notice inviting comments, interventions, and protests on the Amended Surrender Application on or before December 15, 2020, (b) commence environmental review of this application, and (c) expedite its consideration of this application in order that the Renewal Corporation (if authorized to proceed) may commence pre-drawdown actions no later than July, 2022.

On November 17, 2020, PacifiCorp, the Karuk Tribe, the Yurok Tribe, the State of Oregon, the State of California (the States), and the Renewal Corporation entered into a Memorandum of Agreement (MOA) for carrying out their respective rights and duties under the KHSA and achieving dam removal. The MOA contemplates, among other things, that the Renewal Corporation, PacifiCorp, and the States will prepare a new license transfer application requesting a transfer of the FERC license, which will propose to remove PacifiCorp from the license for the Lower Klamath Project and add the States and KRRC as co-licensees for the purposes of surrender of the Lower Klamath license ("New

⁹ *Arizona Public Service Company*, 97 FERC ¶ 61315 (December 20, 2001); *PacifiCorp*, 97 FERC ¶ 61348 (December 21, 2001). In the Commission's order holding PacifiCorp's relicense application in abeyance, the Commission stated that it will consider this surrender application as an alternative to relicensing. *See PacifiCorp*, 155 FERC P 61271 (June 16, 2016) (Abeyance Order) at ¶ 13 ("we will hold the relicensing proceeding in abeyance, pending our determination on the license transfer and surrender applications that the Amended Settlement Agreement provides will be filed with the Commission on or around July 1, 2016.").

¹⁰ PacifiCorp filed its application for a new license for the Klamath Hydroelectric Project on February 25, 2004 and that relicense proceeding has been held in abeyance pending the development and submission of this license surrender proposal. *See* FERC Project No. 2082-027. The application to relicense the Klamath Project, and information provided by PacifiCorp in support of that application, is referred to in this Amended Surrender Application as the "New License Application."

Transfer Application”). The New Transfer Application will be filed by January 16, 2021. PacifiCorp and the States have also agreed in the MOA to create an additional contingency fund. This additional contingency is intended to express the full commitment by PacifiCorp and States to dam removal. The additional contingency funding will be in the amount of \$45 million to ensure dam removal will occur and be completed. The MOA signatories believe that funding for Facilities Removal beyond the KHSA state cost cap is unlikely to be needed but have agreed that this additional contingency fund provides a clear and definitive commitment of resources that will ensure dam removal is completed. PacifiCorp and the States will each contribute \$15 million for this additional contingency fund and share any cost overruns that may occur over this amount equally.

II. Update of the Definite Plan and Regulatory Compliance.

The Renewal Corporation is prepared to commence the Proposed Action. The Definite Decommissioning Plan is a shovel-ready scope of work for decommissioning the Project. Since this application was filed in 2016, the Renewal Corporation has worked diligently with the parties to the KHSA, federal agencies, tribal nations, state and local governments and other stakeholders to complete its comprehensive and fully financed Definite Decommissioning Plan.

A. Plan Development.

The KHSA designates the Renewal Corporation as the “Dam Removal Entity” for purposes of undertaking “Facilities Removal.”¹¹ The obligations and responsibilities of the “Dam Removal Entity” include the preparation and implementation of a decommissioning plan based on the U.S. Bureau of Reclamation’s “Detailed Plan for Dam Removal--Klamath River Dams” (July 2012) (Detailed Plan).¹² The Detailed Plan was filed with the Initial Surrender Application as Exhibit E.3. The Detailed Plan provides contextual background for the development of the Renewal Corporation’s decommissioning plan but is now replaced and superseded by the Definite Decommissioning Plan submitted with this amended application.

The term “Definite Plan” is the term used in the KHSA to refer to the Renewal Corporation’s decommissioning plan.¹³ In July of 2018, the Renewal Corporation submitted a Definite Plan Report in the License Amendment and Transfer Proceeding, in response to the Commission’s request for additional information.¹⁴ The Definite Plan Report was subsequently reviewed by the BOC and updated in response to their recommendations. The updated Definite Plan is based on 60% design specifications and is an executable scope of work. The Definite Decommissioning Plan submitted herewith further refines and supersedes the Definite Plan. It is comprised of a narrative plan (**Exhibit A-1**) and the 60% design specifications (**Exhibit A-2**).

¹¹ KHSA § 1.4. “Facilities Removal” is defined as the “physical removal of all or part of each of the Facilities to achieve at a minimum a free-flowing condition and volitional fish passage, site remediation and restoration, including previously inundated lands, measures to avoid or minimize adverse downstream impacts, and all associated permitting for such actions. “Facilities” are defined as the “hydropower facilities within the jurisdictional boundary of FERC Project No. 2082: Iron Gate Dam, Copco No. 1 Dam, Copco No. 2 Dam, J.C. Boyle Dam, and appurtenant works currently licensed to PacifiCorp.”

¹² KHSA § 7.2.

¹³ KHSA § 1.4.

¹⁴ The Renewal Corporation filed the Definite Plan Report in the License Amendment and Transfer Proceeding on June 28, 2018 (FERC Accession no. 20180629-5018).

Until implementation of the Definite Decommissioning Plan pursuant to a Commission order approving surrender is imminent, PacifiCorp is required by the KHSA to maintain project operations.¹⁵ PacifiCorp is also responsible for the physical removal of a “facility or any equipment and personal property that PacifiCorp determines has salvage value, and physical disconnection of the facility from PacifiCorp’s transmission grid.”¹⁶ The Definite Decommissioning Plan describes all steps required to implement the Proposed Action.

The Definite Decommissioning Plan is a complete plan for license surrender and is proposed at a 60% design level of specificity. It is unique, if not unprecedented, for a surrender application to describe the Proposed Action at this level of specificity. The Definite Decommissioning Plan is supported by an Environmental Report (Exhibit E) that incorporates and updates relevant portions of two prior NEPA environmental impact statements and a prior CEQA environmental report. The KRRC urges the Commission to act now to determine the appropriate level of further review required to address any issues that have not been covered by the prior environmental impact statements and environmental reports.¹⁷ The parties ask FERC to notice the Amended Surrender Application as ready for environmental analysis as soon as possible, but not later than December 15, 2020.

B. Informal Consultations.

1. Endangered Species Act/Magnuson-Stevens Fishery Conservation and Management Act.

On November 10, 2016, the Commission designated the Renewal Corporation and PacifiCorp as non-federal representatives for informal consultation for purposes of Section 7 of the Endangered Species Act and Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act. Consistent with its obligations under the KHSA, the Renewal Corporation initiated informal consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Since 2017, the Renewal Corporation has undertaken informal consultation consisting of workshops and conference calls with agencies responsible for implementing ESA consultation. The Renewal Corporation is currently preparing a draft Biological Assessment to better evaluate potential impacts to those species potentially impacted by the Proposed Action. A consultation record is provided at **Exhibit E-1, Appendix B.**

2. Section 106 of the National Historic Preservation Act.

On November 10, 2016, the Commission designated the Renewal Corporation and PacifiCorp

¹⁵ KHSA § 7.1.6, and the implementing “Agreement for the Operation and Maintenance of the Lower Klamath Project” attached at Exhibit B-2.

¹⁶ KHSA § 1.4.

¹⁷ From this point forward environmental review should be fully integrated with the Commission’s consideration of this application. Council on Environmental Quality’s regulations state: Agencies should integrate the NEPA process with other planning and authorization processes *at the earliest reasonable time* to ensure that agencies consider environmental impacts in their planning and decisions, to *avoid delays later in the process, and to head off potential conflicts.* 40 C.F.R. § 1501.2(a) (2020) (emphasis added).

as non-federal representatives for purposes of Section 106 of the National Historic Preservation Act and the Advisory Council’s regulations. Consistent with its obligations under the KHSA, the Renewal Corporation initiated informal consultation with the California and Oregon State Historic Preservation Officers, the Karuk Tribe, the Yurok Tribe of the Yurok Reservation, the Klamath Tribes, the Hoopa Valley Tribe, the Resighini Rancheria, the Cher-Ae Heights Indian Community of Trinidad Rancheria, Quartz Valley Indian Community of the Quartz Valley Reservation of California, the Confederated Tribes of The Siletz Indians of Oregon, the Shasta Nation, the Shasta Indian Nation, the Modoc Tribe of Oklahoma, and other interested parties. The Renewal Corporation formed a Cultural Resources Working Group in August 2017.¹⁸ The Renewal Corporation continues to meet with this working group and has prepared a draft Historic Properties Management Plan and a draft Memorandum of Agreement (MOA). A consultation record is provided at **Exhibit E-1, Appendix B**.

C. State Laws and Local Regulations.

The Definite Decommissioning Plan incorporates the requirements of state and local law as elements of the Proposed Action. The Definite Decommissioning Plan refers to these requirements as “management measures” which in turn are incorporated in management plans developed in consultation with the relevant state and local agencies. These management plans are then incorporated into the Definite Decommissioning Plan and submitted to FERC as proposed enforceable obligations of the surrender order.

3. Section 401 Clean Water Act Water Quality Certifications.

The State of Oregon Department of Environmental Quality (ODEQ) issued its Section 401 Water Quality Certification for the Project on September 7, 2018. The Definite Decommissioning Plan includes management plans that incorporate elements of the ODEQ Water Quality Certificates as proposed management measures.

The State of California State Water Resources Control Board (California Water Board) issued its Section 401 Water Quality Certification for the Project on April 7, 2020. Concurrent with issuance of the Water Quality Certification the California Water Board issued its Final Environmental Impact Report (FEIR) in compliance with the CEQA. The Definite Decommissioning Plan includes management plans that incorporate elements of these decisions as proposed management measures.

4. Other State and Local Regulations.

a. State Law.

On September 18, 2020, the California Department of Fish and Wildlife (CDFW) and the Renewal Corporation entered into a Memorandum of Understanding (CDFW MOU) that establishes proposed management measures to comply with the California Fish and Game Code sections 1600, *et seq.* and 2080, *et seq.* The management plans anticipated by the MOU will be incorporated in the

¹⁸ Cultural surveys were conducted as pedestrian surveys and cultural resources monitoring (SWRCB 2020a). An estimated 8,189 acres of federal, state, and/or private land have been previously surveyed within the records search area and except for some proposed disposal sites, encompasses the current boundaries of the Proposed Project (SWRCB 2020a).

Definite Decommissioning Plan. The CDFW MOU is appended as Attachment F to the Amended Initial Statement.

The Renewal Corporation is consulting with ODEQ, the Oregon Water Resource Department, the Oregon Department of State Lands, and the Oregon Department of Fish and Wildlife to develop a similar MOU (Oregon MOU). The Oregon MOU will address state laws and regulations relevant to the Proposed Action and the procedures that the Renewal Corporation will follow to comply with these requirements. The management plans anticipated by the Oregon MOU will be incorporated in the Definite Decommissioning Plan. The Oregon MOU will be filed with FERC when it is finalized.

b. Local Regulations.

The Renewal Corporation has entered into a MOU with Klamath County, Oregon, with respect to the impacts of the Proposed Action on roads, bridges, and traffic within Klamath County (Klamath County MOU). The Klamath County MOU is appended as Attachment E to the Amended Initial Statement.

The Renewal Corporation is consulting with Siskiyou County, California with respect to the terms and conditions of a similar MOU. The Renewal Corporation is also consulting with Del Norte County, California, to develop a MOU related to potential sediment transport that affects ocean navigation.

The management plans will include the measures contained in the Klamath MOU. The management plans will be informed by consultations with Siskiyou County and Del Norte County. The Siskiyou and Del Norte County MOUs will be filed with FERC if and when they are finalized.

III. Procedural Determinations and Schedule for Expedited Review.

A. Summary.

The Renewal Corporation and PacifiCorp respectfully ask the Commission to issue a license surrender order and approve the Proposed Action on terms and conditions that are consistent, in all material respects, with the terms and conditions of the KHSA. The Proposed Action is a multi-party settlement resulting from years of work to resolve longstanding, complex, and intractable conflicts over resources in the Klamath Basin. Implementation of the KHSA is critical to this effort and has the broad support of the States of California and Oregon, PacifiCorp, tribal nations, local governments, non-governmental organizations, irrigators, and other interested parties.

This Amended Surrender Application is a settlement proposal submitted to the Commission as an alternative to PacifiCorp's New License Application. This submittal follows the procedural path approved by the Commission in the Abeyance Order¹⁹ and is consistent with the procedural precedent established by the Commission for consideration of such alternatives in *Arizona Public Service*

¹⁹ In the Abeyance Order, the Commission granted PacifiCorp's motion to hold the relicensing proceeding in abeyance, pending its determination on "the license transfer and surrender applications that *the Amended Settlement Agreement provides will be filed* with the Commission on or around July 1, 2016." Abeyance Order at ¶ 13 (emphasis added).

Company, 97 FERC ¶ 61315 (December 20, 2001). The parties appreciate the guidance provided by the Commission in the License Transfer Order and for confirming the procedural path forward for implementation of the KHSA. Building on the 2016 License Transfer Application and the License Transfer Order, Renewal Corporation and PacifiCorp request clarification of two additional procedural issues noted below. Additionally, the parties ask the Commission to initiate environmental review and to expedite its consideration of the Amended Surrender Application in order that the Renewal Corporation (if authorized to proceed) may commence pre-drawdown actions no later than July 2022.

B. Non-Attribution of Record to PacifiCorp in the New License Application Proceeding.

The KHSA and MOA establish a process for implementation of this settlement that is dependent upon decisions to be made by this Commission. Specifically, the parties to the MOA have committed to ensure that dam removal is effected “unless the States and PacifiCorp, in consultation with Karuk and Yurok Tribes, mutually agree to reject the license surrender order on the basis that the terms of the order, including terms of any federal agency consultation concerning the order, are significantly outside the norm for FERC orders involving major project construction or deconstruction in a manner that creates significant financial risk to the States or PacifiCorp.” In making removal dependent on actions by the Commission, this settlement is not unique. The Commission has the experience and expertise to fully consider and implement such settlements on terms and conditions that are consistent with the Federal Power Act. Moreover, the Commission generally favors such settlements, because they provide a means to save time and money, avoid the need for protracted litigation, and to promote the development of positive relationships among entities who may be working together to implement the settlement.²⁰

The Amended Surrender Application presents a settlement proposal as *an alternative* to a relicensing application. This procedural path was approved by the Commission in the Abeyance Order as both a reasonable and an efficient way to proceed:

Given the circumstances of the case, and the complex nature of the proposals the settling parties plan to make to the Commission, PacifiCorp’s request to suspend the relicensing proceeding for the Klamath Project is *reasonable*. Requiring the parties, other stakeholders, and Commission staff to simultaneously proceed with both a relicensing proceeding and a transfer and surrender proceeding *would be burdensome and an inefficient use of resources*.

Abeyance Order at ¶13 (emphasis added).

In considering other settlements as an alternative to a relicensing proposal, the Commission has established procedural safeguards that protect the parties in the event that their settlement is not approved. If parties to a relicensing proceeding were not able to present a settlement proposal without prejudice to their interests in a relicensing proceeding, then the parties would be forced to abandon their interests in the relicensing proceeding before knowing if their settlement was approved. The Commission addressed this issue in *Arizona Public Service Company*, 97 FERC ¶ 61315 (December 20, 2001):

²⁰ Policy Statement on Hydropower Licensing Settlements, Docket No. PL06-5-000 (September 21, 2006).

It is understandable that, where settlements alter proposals contained in relicense applications, licensees would not wish to abandon their original proposals unless they could be sure the settlements to which they agreed would be approved. The procedures we have adopted for processing relicense applications were not fashioned with these situations in mind. However, in the interest of respecting settlements when possible, we favor accommodating settlement parties on this issue in the absence of other considerations that would make such an accommodation contrary to the public interest.

Id. at ¶ 62449. The Commission should apply this precedent here and consider this Amended Surrender Application without prejudice to the parties' interests in PacifiCorp's relicensing proceeding notwithstanding the minimal likelihood of the Lower Klamath Project returning to relicensing.²¹

A key to "not be forced to abandon their original proposals" is non-attribution of positions asserted in this license surrender proceeding to parties in the relicensing proceeding. This comes into especially sharp focus where here, the Renewal Corporation is the lead applicant for surrender and PacifiCorp is a co-applicant only until such time that the license is transferred to the Renewal Corporation and the States. The Renewal Corporation and PacifiCorp therefore ask the Commission to clarify and confirm that the Initial Surrender Application and the Amended Surrender Application, and all information heretofore or hereinafter submitted to the Commission by the Renewal Corporation in support of this application, is solely attributable to the Renewal Corporation and is not attributable to PacifiCorp in the New License Application proceeding.

C. Renewal Corporation Acts in a Representative Capacity.

The Commission has also long recognized the right of co-licensees to agree among themselves to divide their responsibilities under their license,²² or to agree among themselves to divide their responsibilities under a surrender order.²³ The parties to the KHSa made such arrangements as part of their settlement. The KHSa assigns the Renewal Corporation the responsibility to act as the proponent of this Amended Surrender Application. PacifiCorp's role is limited to that of providing technical support. Section 7.1.7 of the KHSa specifically provides:

Concurrently with the joint application for license transfer, the DRE will file an application with FERC to surrender the FERC license for the Facilities for the purpose of Facilities Removal, which will include a copy of this Settlement and the Detailed Plan. The DRE will request that FERC defer acting on the application until the conditions in Section 7.1.4 are satisfied. *The DRE will take any action necessary to obtain necessary FERC authorization to carry out Facilities Removal in accordance with this Settlement. PacifiCorp will provide*

²¹ Quoting Arizona, the Commission applied the same rule in the Condit case:

"[W]e see no statutory bar to deferring the processing of a timely-filed relicense application while we consider an alternate proposal reached through settlement negotiations. It is understandable that, where a settlement alters proposals contained in relicense applications, licensees would not wish to abandon their original proposals and assume the risk that the settlement proposals might not be approved."

PacifiCorp, 97 FERC ¶ 61348 at 62627-8.

²³ *Erie Boulevard Hydropower, L.P.*, 155 FERC ¶ 62243 (June 23, 2016).

technical support to the DRE and to FERC in processing the surrender application, but will not be a co-applicant or co-licensee on the surrender application unless otherwise mutually agreed upon with the DRE.

(Emphasis added.)

PacifiCorp should not be burdened with the tasks of advancing an application that, although it supports, it never had any intention to pursue. A corollary of non-attribution of the Renewal Corporation's actions and statements as a co-applicant to PacifiCorp is to allow the Renewal Corporation to proceed as the proponent of this application. The Renewal Corporation and PacifiCorp therefore ask the Commission to clarify and confirm that the Renewal Corporation may act, with PacifiCorp's consent and its technical support, as the proponent of the Amended Surrender Application, including actions taken as the non-federal representative in ongoing consultations related to the Amended Surrender Application.

D. Procedural Schedule for Expedited Review.

The Commission has determined that the Renewal Corporation has a plan and sufficient resources to carry out the Proposed Action.²⁴ This plan and these resources are time sensitive. Exhibit E updates and incorporates relevant portions of two prior NEPA environmental impact statements and two prior CEQA environmental reports, such that the appropriate level of further environmental review should be limited to issues that have not been covered by Exhibit E and the prior environmental impact statements and environmental reports.²⁵ The public interest is best served by moving this application forward. To this end, the Renewal Corporation proposes the following procedural schedule for expedited review of this application:

Procedural Schedule

Event	Responsible Party	Proposed Date
Notice Soliciting Comments, Motions to Intervene, and Protests; commence environmental review.	FERC	As soon as possible, but not later than December 15, 2020
New Transfer Application (separate proceeding)	Renewal Corporation, States and PacifiCorp	On or before January 16, 2021

²⁴ License Transfer Order at ¶ 77.

²⁵ NEPA does not require duplicative review of prior environmental analysis. A finding of no significant impact may be based on the environmental assessment and other environmental documents. 40 C.F.R. § 1501.6(b). CEQ regulations require agencies to “reduce excessive paperwork” and authorize the incorporation of prior environmental documents by reference. 40 C.F.R. § 1501.4(l). Indeed, agencies “*shall incorporate* material, such as planning studies, analyses, or other relevant information, into environmental documents by reference when the effect will be to cut down on bulk without impeding agency and public review of the action.” 40 C.F.R. § 1501.12 (emphasis added).

Comments, Motions to Intervene, and Protests Filed	Parties	60 days after public notice
Definite Decommissioning Plan True-Up to 90% Design	Renewal Corporation	February 26, 2021
Draft NEPA Document	FERC	By December 1, 2021
Comments on Draft NEPA Document	Renewal Corporation and Parties	February 1, 2021 (60 days following draft NEPA document)
Final NEPA Document	FERC	March 15, 2022
License Surrender Order	FERC and D2SI-PRO	April 15, 2022

E. Confirmation of Procedural Determinations and Schedule.

The Renewal Corporation and PacifiCorp respectfully request that, on or before December 15, 2020, the Commission issue a notice inviting comments, interventions, and protests on the Amended Surrender Application as soon as possible, but not later than December 15, 2020. The parties further request that the Commission's public notice clarify and confirm that:

- the Initial Surrender Applications and the Amended Surrender Application, and all information heretofore or hereinafter submitted to the Commission by the Renewal Corporation in support of this application, is solely attributable to the Renewal Corporation, and is not attributable to PacifiCorp in the New License Application proceeding;
- the Renewal Corporation may act, with PacifiCorp's consent and its technical support, as the proponent of the Amended Surrender Application, including actions taken as the non-federal representative in the ongoing consultations related to the Amended Surrender Application; and
- the Commission adopts the proposed procedural schedule, initiating environmental review of this application and expediting its consideration of this application consistent with the Commission's applicable rules and procedures.

IV. Documents Incorporated by Reference.

The Renewal Corporation hereby incorporates by this reference the following information from the License Amendment and Transfer Proceeding and submits this information to the record of this proceeding in support of the Amended Surrender Application.

Documents Incorporated by Reference
Table ES-2

Accession No.	Submitted or Issued By	Document
20160923-5367	Renewal Corporation and PacifiCorp	Joint Application for Approval of License Amendment and License Transfer.
20170301-5273	Renewal Corporation	Informational Filing in Support of Joint Application for License Transfer and License Amendment.
20170623-5103	Renewal Corporation and PacifiCorp	Response to April 24, 2017 Additional Information Request.
20171204-5131	Renewal Corporation	Response to October 5, 2017 Additional Information Request.
20171229-5134	Renewal Corporation	Reply to Comments and to Comments in Interventions under FERC Project Nos. P-2082-062 and P-1480.
20180315-3093	Federal Energy Regulatory Commission	Order Amending License and Deferring Consideration of Transfer Application.
20180323-5047	Renewal Corporation	Supplemental Response to October 5, 2017 Additional Information Request.
20180509-5132	Renewal Corporation and PacifiCorp	Joint Answer of PacifiCorp and Renewal Corporation to Motion to Dismiss.
20180517-5126	Renewal Corporation and PacifiCorp	Joint Answer of PacifiCorp and Renewal Corporation to Motion for Clarification and Alternative Petition for Declaratory Order.
20180629-5018	Renewal Corporation	Response to March 15, 2018 Additional Information Requests and Submittal of the Definite Plan Report.
20181212-5147	Renewal Corporation	Response to BOC Recommendations; Board of Consultants Letter Report Mtg. No. 1.
20190312-5107	Renewal Corporation	Comments re Draft Environmental Impact Report.
20190729-5039	Renewal Corporation	Supplemental Response to BOC Recommendations; Board of Consultants Letter Report Mtg. No. 1.
20200228-5326	Renewal Corporation	Supplemental Response to BOC Recommendations; Board of Consultants Letter Report Mtg. No. 1.
20200320-5197	Renewal Corporation	Response to BOC Recommendations; Board of Consultants Letter Report Mtg. No. 2
20200610-5029	Renewal Corporation	Supplemental Response to Recommendation No. 1; Board of Consultants Letter Report Mtg. No. 2.

V. Conclusion.

The KHSAs reflect years of hard work and compromise by many parties with divergent interests and the benefits to the Klamath Basin that will flow from the implementation of this settlement are long overdue. The Definite Decommissioning Plan is ready for implementation. The Renewal Corporation has a plan, schedule and resources in place to implement the Definite Decommissioning Plan, and those resources are being supplemented by the funding commitments by the States and PacifiCorp in the MOA. Delay in obtaining the necessary approvals for dam removal jeopardizes this plan and schedule and will increase project cost. The Renewal Corporation and PacifiCorp respectfully request that, on or before December 15, 2020, the Commission: (a) issue a notice inviting comments, interventions, and protests on the Amended Surrender Application on or before December 15, 2020, (b) commence environmental review of this application, and (c) expedite its consideration of this application so that the Klamath dams can be removed, and the citizens of California and Oregon can enjoy the long-awaited benefits of their settlement.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Klamath River Renewal Corporation
PacifiCorp**

Project No. 14803

**AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR
MAJOR PROJECT AND REMOVAL OF PROJECT WORKS AND
REQUEST FOR EXPEDITED REVIEW**

AMENDED INITIAL STATEMENT PURSUANT TO 18 C.F.R. § 4.51(A)

The Renewal Corporation and PacifiCorp provide this update to the Initial Statement the Renewal Corporation filed in September 2016.

I. Application.

The Renewal Corporation and PacifiCorp apply to the Federal Energy Regulatory Commission to surrender the license for the Lower Klamath Project, Project No. 14803.

II. Location of Project.

The exact location of the Project is:

State: Oregon (J.C. Boyle Development)
 California (Copco 1, Copco 2, and Iron Gate Developments)

County: Klamath County, Oregon
 Siskiyou County, California

Township: Klamath Falls and Keno, Oregon
 Copco (Unincorporated), California

Water Body: Klamath River

III. Applicant's Name, Address, and Agent.

The exact name and business address of the co-applicants are:

Lead Applicant:

Klamath River Renewal Corporation
Attn: Mr. Mark Bransom
Chief Executive Officer

2001 Addison Street, Suite 317
Berkeley, CA 94704

Agent/Attorneys:

Perkins Coie LLP
Markham A Quehrn
10885 N.E. Fourth Street, Suite 700
Bellevue, WA 98004-5579

Co-Applicant:

PacifiCorp
825 NE Multnomah, Suite 2000
Portland, OR 97232.

Agent/Attorneys:

Troutman Pepper Hamilton Sanders LLP
Charles Sensiba
401 9th Street, N.W., Suite 1000
Washington, D.C. 20004

IV. Applicant's Status.

The Renewal Corporation is a domestic non-profit public benefit corporation in good standing incorporated in the State of California. The Renewal Corporation's Articles of Incorporation and By-laws were previously provided to FERC as Exhibit H.2 and H.3, respectively, to the original application. The By-Laws were amended in September of 2019, and the amended By-Laws are attached to this update as **Attachment A** to this Initial Statement.

PacifiCorp is a corporation organized under the laws of the state of Oregon and is qualified to transact business as an electric utility in the states of Oregon, Washington, California, Idaho, Utah, Montana, and Wyoming.

V. Statutory and Regulatory Requirements.

A. Oregon.

The statutory or regulatory requirements of the state of Oregon that affect the Proposed Action and the steps that the Renewal Corporation is taking to comply with such requirements are described below.

1. **Oregon Department of Environmental Quality’s Section 401 Water Quality Certification.**

ODEQ issued a water quality certification for the Proposed Action on September 7, 2018. The certification confirms protection of Oregon water quality in compliance with Clean Water Act Sections 301, 302, 303, 306 and 307; Oregon Administrative Rules (OAR) Chapter 340, Divisions 041 and 048; Oregon Revised Statute (ORS) 543A.025 (2) to (4) and other appropriate requirements of state law. The certification is attached at **Attachment B** to this Initial Statement.

2. **Oregon Department of Environmental Quality’s Evaluation and Findings Report Section 401 Water Quality Certification for the Removal of the Lower Klamath Project.**

The ODEQ issued its evaluation and findings in support of its water quality certification on September 7, 2018. This evaluation and its findings provide a detailed assessment of all relevant compliance requirements for the Clean Water Act (Section 2) and other appropriate requirements of state law (Section 10). ODEQ’s Evaluation and Findings Report is attached at **Attachment C** to this Initial Statement.

3. **Memorandum of Understanding with Oregon Department of Environmental Quality, Oregon Water Resource Department, Oregon Department of State Lands, and Oregon Department of Fish and Wildlife.**

The Renewal Corporation is negotiating a MOU with the above-referenced Oregon Agencies. The Oregon MOU will establish the procedures to be followed by the Oregon Agencies and the Renewal Corporation to address matters that fall under the purview of the Oregon Agencies’ respective jurisdiction.

4. **Oregon Department of Environmental Quality LUCS and Findings in Support of Land Use Compatibility for Removal of John C. Boyle Dam.**

Klamath County issued a Land Use Compatibility Statement (LUCS) for the Proposed Action on April 13, 2018. The LUCS and supporting findings were provided to ODEQ on May 10, 2018. The LUCS and supporting findings provide an analysis, pursuant to OAR 340-048-0020(2)(i), that demonstrates that the Proposed Action is compatible with the applicable comprehensive plan and land use regulations of Klamath County. The LUCS and supporting findings are attached at **Attachment D** to this Initial Statement.

5. **Memorandum of Understanding with Klamath County, Oregon.**

The Renewal Corporation and Klamath County Oregon entered into a MOU on March 26, 2019. The Klamath County MOU establishes the management measures to be followed by the parties to implement the Proposed Action in compliance with Klamath County

Code Chapter 70, Article 71 (vehicular access). The Klamath County MOU is attached at **Attachment E** to this Initial Statement.

6. Water Rights.

Pursuant to Section 7.6.5 of the KHSA, PacifiCorp will assign its hydroelectric water rights to the Oregon Water Resource Department for conversion to an instream water right pursuant to ORS 543A.305, and Oregon Water Resource Department shall take action to effect such conversion, in accordance with the process and conditions set forth in the “Water Right Agreement between PacifiCorp and Oregon.” See KHSA Exhibit 1.²⁶

B. California.

The statutory or regulatory requirements of the state of California that affect the Proposed Action and the steps that the Renewal Corporation is taking to comply with such requirements are described below.

1. California Water Board’s Section 401 Water Quality Certification.

The California Water Board issued a water quality certification for the Proposed Action on April 7, 2020. Section 3, “Regulatory Authorities,” of the certification sets out in detail the relevant portions of the Clean Water Act and other appropriate requirements of state law affected by the Proposed Action. The certification confirms protection of California water quality compliance with these regulatory authorities. The certification was filed by the California Water Board in this proceeding.²⁷

2. Final Environmental Impact Report for Lower Klamath Project License Surrender (FEIR).

The California Water Board issued a FEIR for the Proposed Action on April 7, 2020. The FEIR evidences the State Water Resources Control Board’s compliance with the California Environmental Quality Act (CEQA) with respect to issuance of the Section 401 Water Quality Certification. The FEIR was filed by the California Water Board in this proceeding.²⁸

3. Memorandum of Understanding with California Department of Fish and Wildlife.

On September 18, 2020, the CDFW and the Renewal Corporation entered into a MOU that establishes proposed management measures to comply with the California Fish and Game

²⁶ FERC accession no. 20170623-5103 at Exhibit A, Attachment F, Exhibit 1.

²⁷ FERC accession nos. 20200409-5028, 20200408-5017, 20200408-5025, 20200408-5026, 20200408-5027, 20200408-5029, 20200408-5031 and 20200408-5032.

²⁸ FERC accession nos. 20200408-5033, 20200408-5034, 20200408-5035, 20200408-5037, 20200408-5038, 20200408-5044, 20200408-5048, 20200408-5051, 20200408-5053 and 20200408-5058.

Code sections 1600, et seq. and 2080, et seq. The CDFW MOU is attached at **Attachment F** to this Initial Statement

4. Memorandum of Understanding with Siskiyou County, California.

The Renewal Corporation is consulting with Siskiyou County, California on the terms and conditions of a MOU that would address matters that fall under the purview of Siskiyou County Code Title 7 – Public Works Chapter 3 (Department of Public Works). The Siskiyou County MOU will be filed with FERC if it is finalized.

5. Memorandum of Understanding with Del Norte County, California.

The Renewal Corporation is consulting with Del Norte County, California on the terms and conditions of a MOU that would establish sediment monitoring measures and related mitigation proposals for any sediment impacts to Crescent City Harbor caused by the Proposed Action. The Del Norte County MOU will be filed with FERC if it is finalized.

6. Water Rights.

Pursuant to Section 7.6.5 of the KHSA, within 90 days of completion of dam removal at the Copco No. 1, Copco No. 2 and Iron Gate Facilities, respectively, PacifiCorp shall submit a Revocation Request to the California State Water Resources Control Board for License No. 9457 (Application No. 17527), and shall notify the State Water Resources Control Board of its intent to abandon its hydroelectric appropriative water rights at the Copco No. 1 and Copco No. 2 Facilities, as applicable, as identified in Statement of Water Diversion and Use Nos. 15374, 15375, and 15376.

VI. Project Owner.

The owner of the Project is:

PacifiCorp
825 NE Multnomah, Suite 2000
Portland, OR 97232.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Klamath River Renewal Corporation
PacifiCorp**

Project No. 14803

**AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR
MAJOR PROJECT AND REMOVAL OF PROJECT WORKS AND
REQUEST FOR EXPEDITED REVIEW**

18 C.F.R. § 4.32(a) STATEMENT

The Renewal Corporation and PacifiCorp provide this update to the statement the Renewal Corporation filed in September 2016.

I. Proprietary Rights.

Currently, PacifiCorp holds all of the proprietary rights required to operate and maintain the Project. Upon acceptance of the Project license and the transfer of title to the properties under license from PacifiCorp to the Renewal Corporation, the Renewal Corporation will hold all of the proprietary rights required to operate and maintain the Project and to undertake the Proposed Action.

II. Affected Governments.

A. County Governments in which any part of the Project, and any Federal facilities that would be used by the Project, would be located:

Klamath County, Oregon
305 Main Street
Klamath Falls, OR 97601

Siskiyou County California
1312 Fairlane Road
PO Box 750
Yreka, CA 96097

B. Cities, Towns, and Similar Local Political Subdivisions (A) in which any part of the Project, and any Federal facilities that would be used by the Project, would be located; or (B) that has a population of 5,000 or more people and is located within 15 miles of the Project dam:

City of Klamath Falls
City Manager

500 Klamath Avenue
Klamath Falls, OR 97601

C. Irrigation Districts (A) in which any part of the Project, and any Federal facilities that would be used by the Project, would be located, or (B) that owns, operates, maintains or uses any Project facilities or any Federal facilities that would be used by the Project:

Klamath Basin Improvement District 6640 Kid Lane Klamath Falls, OR 97603	Klamath Drainage District 280 Main Street Klamath Falls, OR 97601
Klamath Water Users Association 2455 Patterson Road—Suite 3 Klamath Falls, OR 97603	Klamath Irrigation District 6640 Kid Lane Klamath Falls, OR 97603

D. Other Political Subdivisions in the general area of the Proposed Action that there is reason to believe would likely be interested in, or affected by, the application:

Del Norte County 981 H Street, Suite 220 Crescent City, CA 95531	Humboldt County 825 5th St. Eureka, CA 95501
City of Yreka 701 Fourth Street Yreka, CA 96097	

E. All Indian tribes that may be affected by the Project:

Yurok Tribe 190 Klamath Boulevard P.O. Box 1027 Klamath, CA 95548	Karuk Tribe 37960 CA-Highway 96 Orleans, CA 95556
Hoopla Valley Tribe 11860 Highway 96 P.O. Box 1348 Hoopla, CA 95546	Quartz Valley Indian Community of the Quartz Valley Indian Reservation of California 13601 Quartz Valley Road Fort Jones, CA 96032
Klamath Tribes P.O. Box 436 Chiloquin, OR 97624	Shasta Indian Nation 19349 Kinene Court Redding, CA 96003
Modoc Tribe of Oklahoma	Shasta Nation

22 North Eight Tribes Trail, Miami, OK 74354	P.O. Box 1054 Yreka, CA 96097
Cher-Ae Heights Indian Community of Trinidad Rancheria P.O. Box 630, Trinidad, CA 95570	The Resighini Rancheria P.O. Box 529 Klamath, CA 95548
Confederated Tribes of The Siletz Indians of Oregon 201 SE Swan Avenue P.O. Box 549 Siletz, OR 97380	

III. Notice.

The Renewal Corporation has provided notice of this Amended Surrender Application by serving all parties on the official service list (FERC docket P-1403-001; P-2082-063).

SUBSCRIPTION AND VERIFICATION UNDER OATH

This Amended Surrender Application is submitted and is executed by the Renewal Corporation as the lead applicant in:

State of California
County of Alameda

by: Mark Bransom
Chief Executive Officer
Klamath River Renewal Corporation
2001 Addison Street, Suite 317
Berkeley, CA 94704

being duly sworn, deposes and says that the contents of this Amended Surrender Application are true to the best of his knowledge or belief. The undersigned applicant has signed the Amended Surrender Application this 11th day of November, 2020.

Mark Bransom



Mark Bransom
Chief Executive Officer
Klamath River Renewal Corporation

Subscribed and sworn to before me, a Notary Public of the Commonwealth of Virginia, this 11th day of November, 2020.

Signature: *Elizabeth Scott Vaughan*



/SEAL/

Elizabeth Scott Vaughan
Electronic Notary Public
Reg# 7847484
Commonwealth of Virginia
My Commission Expires: 03/31/2023

Online Notary Public. This notarial act involved the use of online audio/video communication technology.

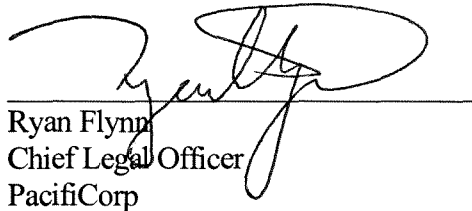
SUBSCRIPTION AND VERIFICATION UNDER OATH

This Amended Surrender Application is submitted and is executed by PacifiCorp as the licensee and co-applicant in:

State of Oregon
County of Multnomah

by: Ryan Flynn
Chief Legal Officer
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232

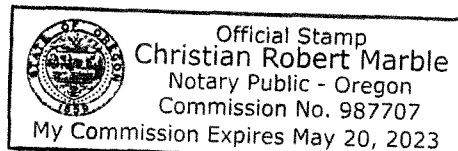
being duly sworn, deposes and says that the contents of this Amended Surrender Application are true to the best of his knowledge or belief. The undersigned applicant has signed the Amended Surrender Application this 10th day of November, 2020.


Ryan Flynn
Chief Legal Officer
PacifiCorp

Subscribed and sworn to before me, a Notary Public of the State of Oregon, this 10th day of November, 2020.

Signature: 

/SEAL/



Attachment A

Bylaws of Klamath River Renewal Corporation

September 26, 2019

**BYLAWS
OF
KLAMATH RIVER RENEWAL CORPORATION**

**ARTICLE I
NAME, PURPOSE AND PRINCIPAL OFFICE**

Section 1.1. Name. The name of the Corporation shall be: KLAMATH RIVER RENEWAL CORPORATION (the “Corporation”).

Section 1.2. Purposes. The charitable purposes of the Corporation shall be as set forth in its Articles of Incorporation, related to the implementation of the Klamath Hydroelectric Settlement Agreement, as amended (hereafter, “KHSA”).

Section 1.3. Principal Office. The principal office of the Corporation for the transaction of business may be established at any place or places within or without the State of California. The principal office may be changed from time to time by the Board of Directors (the “Board”).

**ARTICLE II
MEMBERSHIP**

Section 2.1. Members. The Corporation shall have no members. Any action which would otherwise require the approval of members shall require only the approval of the Board. All rights which would otherwise vest in the members shall vest in the Board.

**ARTICLE III
BOARD OF DIRECTORS**

Section 3.1. Management by Board. The affairs of the Corporation shall be managed by its Board of Directors, which may exercise all powers of the Corporation and do all lawful acts and things necessary or appropriate to carry out the purposes of the Corporation, subject to any limitations set forth in the Articles of Incorporation, these Bylaws or relevant provisions of the California Nonprofit Public Benefit Corporation Law. The Board may delegate the management of the activities of the Corporation to any person or persons, a management company, or committees, however composed, provided that the activities and affairs of the Corporation shall be managed and all corporate powers shall be exercised under the ultimate direction of the Board.

Section 3.2. Number of Directors.

(a) The Board shall have at least one and no more than two directors until July 15, 2016. One initial director shall be appointed by the Governor of Oregon, or the Oregon Governor's designee, and one director shall be appointed by the Governor of California, or the California Governor's designee. The period of time prior to July 15, 2016 is referred to as the "Initial Directors Period."

(b) After the Initial Directors Period, the Board shall have at least two and no more than 15 directors comprised of the following: the two initial directors; four additional directors appointed by the Governor of California or the California Governor's designee; three additional directors appointed by the Governor of Oregon or the Oregon Governor's designee, one director appointed by the Karuk Tribe; one director appointed by the Yurok Tribe; one director appointed by the Klamath Tribes; two directors appointed by the entities listed in part A of Exhibit 1; and one director appointed by the entities listed in Part B of Exhibit 1; provided that, only parties to the KHSa may participate in the foregoing appointment authority. An appointing authority may also appoint up to two alternate directors, each of whom shall have the same rights as the director, except that an alternate director (i) may be counted for the purpose of quorum, and may vote, in a meeting of the Board or of a committee on which the director serves as a member, only in the absence of the director; and (ii) may not serve as a member, or vote in the meetings, of the Executive Committee. Under item (i), only one alternate may vote at a meeting attended by both alternates, such alternate to be confirmed by the chair at the start of the meeting. Appointing authorities shall make their appointments by providing written notice of the appointment and its effective date, in advance, to the Board. In the case of the appointments by the entities in Exhibit 1, the respective notices of appointment shall be executed on behalf of a majority of the entities appearing in part A of Exhibit 1, and on behalf of both of the entities appearing in Part B of Exhibit 2.

Section 3.3. Selection and Term of Office. Unless earlier removed as provided hereunder, each director shall hold office for six years and shall serve until a successor has been appointed, except as provided in Sections 3.4 and 3.5. Upon the expiration of the term of any director, that director's successor shall be appointed in the same manner as that director whose term expired. There shall be no limits on the number of consecutive full or partial terms a director may serve on the Board. The Board may provide for staggered terms by resolution.

Section 3.4. Vacancies.

(a) Subject to the provisions of Section 5226 of the California Nonprofit Corporation Law, any director may resign by giving written notice to the Secretary and to the entity that appointed the director, which resignation shall be effective upon the Secretary's receipt thereof, unless the notice specifies a later time for the effectiveness of such resignation. Promptly after receiving any notice of resignation by a director, the Secretary shall notify the Board and the appointing authority that appointed the resigning director. If the resignation is effective at a future time, a successor may be selected before such time, to take office when the resignation becomes effective. If the Secretary is the resigning director then the notice of resignation notice shall go to the President, who shall provide the foregoing notices to the Board and the appointing authority.

(b) Each vacancy in the Board shall be filled in the same manner as the director whose office is vacant was selected. Each director so selected shall hold office until the expiration of the term of the replaced director and until a successor has been selected and qualified, except for directors removed pursuant to Section 3.5 of this Article III, whose terms shall expire upon removal.

(c) A vacancy or vacancies in the Board shall be deemed to exist in case of the death, resignation, or removal of any director, or if the authorized number of directors is increased.

Section 3.5. Removal.

(a) The Board may by resolution declare vacant the office of a director who has been declared of unsound mind by an order of court, or convicted of a felony, or found by final order or judgment of any court to have breached a duty arising under Article 3 of Chapter 2 of Part 2 of the California Nonprofit Corporation Law.

(b) A director may be removed for cause by a majority vote of the directors then in office. Such cause shall be at the sole discretion of the Board.

(c) A director may be removed at any time by the appointing authority for that director, in its sole discretion, by notice to the Secretary that meets the requirements for an appointment notice under Section 3.2(b).

Section 3.6. Place of Meetings. Meetings of the Board may be held at any place within or outside the State of California that has been designated from time to time by resolution of the Board. In the absence of such designation, regular meetings shall be held at the principal office of the Corporation.

Section 3.7. Annual Meetings. The Board shall hold an annual meeting for the purpose of organization, selection of officers and the transaction of other business.

Section 3.8. Other Regular Meetings. Other regular meetings of the Board shall be held on such dates and at such times as may be fixed by the Board.

Section 3.9. Special Meetings. Special meetings of the Board for any purpose or purposes may be called at any time by the President of the Board or at the request of not less than by 25% of the directors then in office. The Board shall adopt policies relating to holding informational meetings that are open to the public at least once each year.

Section 3.10. Notice.

(a) Notice of the time, place and agenda for a regular meeting of the Board shall be provided to each member of the Board at least seven (7) calendar days before the date of such meeting by telephone, including a voice messaging system or other system of technology designed to record and communicate messages, facsimile, U.S. mail, hand-delivery, electronic mail, or other electronic means. Notice of the time, place and agenda for a special meeting of the Board shall be provided to each member of the Board with at least four (4) days' notice by first-class mail or 48 hours' notice given personally or by telephone, including a voice messaging system or other system

of technology designed to record and communicate messages, facsimile, electronic mail, or other electronic means. Any such notice shall be addressed or delivered to each director at such director's address as it is shown upon the records of the Corporation by the director for purposes of notice or, if such address is not shown on such records or is not readily ascertainable, at the place in which the meetings of the directors are regularly held.

(b) Notice by mail shall be deemed to have been given at the time a written notice is deposited in the United States mails, postage prepaid. Any other written notice shall be deemed to have been given at the time it is personally delivered to the recipient or is delivered to a common carrier for transmission, or actually transmitted by the person giving the notice by electronic means, to the recipient. Oral notice shall be deemed to have been given at the time it is communicated, in person or by telephone or wireless, to the recipient or to a person at the office of the recipient who the person giving the notice has reason to believe will promptly communicate it to the receiver. The notice shall signify the time and place of the special meeting and the business to be transacted.

Section 3.11. Quorum. Presence of a majority of the number of directors then in office at a meeting of the Board constitutes a quorum for the transaction of business, except as otherwise provided in these Bylaws. During the Initial Directors Period the presence of the first director appointed shall constitute a quorum.

Section 3.12. Conduct of Meeting. The President or, in the President's absence, the Vice President, shall preside. If neither the President nor a Vice President is present at a meeting then such meeting shall be chaired by a director selected by a majority of the directors present.

Section 3.13. Participation in Meetings by Conference Telephone. Members of the Board may participate in a meeting through use of conference telephone or similar communications equipment, so long as all members participating in such meeting can hear one another. Any director so participating shall be deemed to be present in person at such meeting.

Section 3.14. Waiver of Notice. Notice of a meeting need not be given to any director who signs a waiver of notice or a written consent to holding the meeting or an approval of the minutes thereof, whether before or after the meeting, or who attends the meeting, without protesting, prior thereto or at its commencement, the lack of notice to such director. All such waivers, consents, and approvals shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 3.15. Adjournment. A majority of the directors present, whether or not constituting a quorum, may adjourn any meeting to another time and place. If the meeting is adjourned for 24 hours or less, notice of the time and place of holding an adjourned meeting need not be given to absent directors if the time and place is fixed at the meeting adjourned. If the meeting is adjourned for more than 24 hours, notice of any adjournment to another time or place shall be given prior to the time of the adjourned meeting to the directors who were not present at the time of the adjournment.

Section 3.16. Action Without Meeting. Any action required or permitted to be taken by the Board may be taken without a meeting if all members of the Board, individually or collectively,

consent in writing to that action. Such action by written consent shall have the same force and effect as a unanimous vote of the Board. Such written consent or consents shall be filed with the minutes of the proceedings of the Board.

Section 3.17. Rights of Inspection. Every director shall have the absolute right at any reasonable time to inspect and copy all books, records, and documents of every kind and to inspect the physical properties of the Corporation of which such person is a director.

Section 3.18. Fees and Compensation. Directors shall not be compensated for their services but may receive reimbursement for expenses reasonably incurred in performance of duties as may be fixed or determined by the Board.

ARTICLE IV COMMITTEES

Section 4.1. Executive Committee.

(a) The Board may designate an Executive Committee. The Executive Committee shall be charged with the general supervision of the Corporation's activities, policies, financial resources and investments. The Executive Committee shall have and exercise all of the powers of the Board during the interim between meetings of the Board except to amend the Articles of Incorporation or Bylaws or to convey real property of the Corporation.

(b) The Executive Committee shall be comprised of the officers designated pursuant to Section 5.1 and at least one director who is not an officer. Non-officer members of the Executive Committee shall be appointed by the Board.

(c) The Executive Committee shall meet at least monthly. The regular meetings of the Executive Committee shall be scheduled by the President. In special cases or emergencies the President may convene a meeting of the Executive Committee upon such notice as is reasonably available and necessary to advise the members of the Executive Committee.

(d) The Minutes of the Executive Committee shall be provided to the Board prior to the next Board meeting.

Section 4.2. Audit Committee. The Board shall appoint an audit committee who shall act pursuant to procedures adopted by the Board from time to time.

Section 4.3. Advisory Council. The Board may, in its sole discretion, appoint an Advisory Council to advise the Board in such of its activities as the Board may from time to time determine. The Advisory Council shall consist of such persons, and such number of persons, as the Board shall appoint from time to time in its sole discretion to provide advice and reflect the views of communities, groups and other interests that may be affected by or interested in the activities of the Corporation, provided that if the Board elects to establish an Advisory Council it shall invite each of the U.S. Department of Interior, the U.S. Department of Commerce, the Oregon Department of Fish and Wildlife, the California Department of Fish and Wildlife, the Oregon Governor's Natural Resources Office, and the California Natural Resources Agency (collectively

the “permanent Advisory Council members”) to designate a representative to serve on the Advisory Council. The Board shall have the right, with or without cause and at any time, to add a member to or remove a member from the Advisory Council, except that the Board shall not remove a representative of a permanent Advisory Council member without cause. The Advisory Council shall meet at such time(s) as are determined by the Board. The Board shall call a meeting of the Advisory Council if (i) one-third or more of the Advisory Council’s members make a request to the President for such a meeting, or (ii) the representative of any permanent Advisory Council member makes such a request. The Board shall send a representative to meetings of the Advisory Council, or may, in its discretion, meet directly with the Advisory Council. The Advisory Council shall make recommendations to the Board on matters referred to the Advisory Council by the Board, and may make recommendations on matters that the Advisory Council determines are relevant to the Corporation’s activities. Individual members of the Advisory Council may decline to participate in particular recommendations of the Advisory Council. The designated representatives of the permanent Advisory Council members shall be given notice of each meeting of the Board in accordance with Section 3.10 hereunder, and shall be invited to attend each such meeting unless it is to be held in executive session.

Section 4.4. Other Committees. Other standing or temporary committees may be established from time to time by the Board. These committees' membership may consist of directors only, both directors and non-directors, or non-directors only (each, a "Board Committee"). Except for the Executive Committee, Board Committees have no legal authority to act for the Corporation except and to the extent that the Board authorizes a Board Committee or member thereof to take a specific action on behalf of the Board. Board Committees shall report their findings and recommendations to the Executive Committee and the Board.

Section 4.5. Acts of a Board Committee. Each Board Committee shall act pursuant to procedures adopted by the Board; provided, however, that when the Board has by resolution authorized a Board Committee to take a specific action on behalf of the Board, such Board Committee shall follow the same decision-making procedures adopted by the Board for acts of the full Board or any other decision-making procedures adopted by the Board for such committee.

Section 4.6. Fees and Compensation. Members of Board Committees may receive reasonable compensation of up to an amount to be determined by the Board. Reimbursement for expenses incurred in performance of duties may be fixed or determined by the Board.

ARTICLE V OFFICERS, EMPLOYEES AND AGENTS OF THE CORPORATION

Section 5.1. Officers. The officers of the Corporation shall be a President, a Vice President, a Secretary, and a Treasurer, each of whom shall be a director. Any number of such offices may be held by the same person, except as provided in the Articles or in these Bylaws and except that, other than during the Initial Directors Period, neither the Secretary nor the Treasurer may serve concurrently as the President of the Board.

Section 5.2. Election. The officers of the Corporation shall be elected annually by a majority of the directors then in office, and each shall serve at the pleasure of the Board.

Section 5.3. Subordinate Officers. The Board may appoint, by a majority vote of the directors then in office, such additional officers, who need not be directors, as the business of the Corporation may require, each of whom shall have the title, hold office for the period, have the authority, and perform the duties specified in the Bylaws or determined from time to time by the Board.

Section 5.4. Removal and Resignation.

(a) Any officer may be removed from such office, with or without cause, at any time, by a majority vote of the directors then in office. The officer in question, if a director, shall not be included when determining the quantity of votes required for a majority vote.

(b) Any officer may resign at any time by giving written notice to the Board. Any resignation shall take effect at the date of the receipt of that notice or at any later time specified in that notice; and, unless otherwise specified in that notice, the acceptance of the resignation shall not be necessary to make it effective.

Section 5.5. Vacancies. A vacancy in any office because of death, resignation, removal, disqualification, or any other cause shall be filled only in the manner prescribed in these Bylaws for regular election or appointment to that office, provided that such vacancies shall be filled as they occur and not on an annual basis.

Section 5.6. Employees and Other Agents. The Board may from time to time appoint such employees and other agents as it shall deem necessary, each of whom shall hold office at the pleasure of the Board, and shall have such authority and perform such duties and receive such compensation, if any, as the Board may from time to time determine. To the fullest extent allowed by law, the Board may delegate to any employee or agent any powers possessed by the Board and may prescribe their respective title, terms of office, authorities and duties.

Section 5.7. President. Subject to the control of the Board, the President shall supervise the Corporation's activities, affairs, and officers. Subject to Section 3.12, the President shall preside at all Board meetings. The President shall have such other powers and duties as the Board or the Bylaws may prescribe.

Section 5.8. Vice President. In the absence or disability of the President, the Vice President shall perform all the duties of the President, and when so acting shall have all the powers of, and be subject to all the restrictions upon, the President. The Vice President shall have such other powers and perform such other duties as from time to time may be prescribed for the Vice President by the Board or by the Bylaws.

Section 5.9. Secretary. The Secretary shall attend to the following:

(a) Book of minutes. The Secretary shall keep or cause to be kept, at the principal executive office or such other place as the Board may direct, a book of minutes of all meetings and actions of directors and Board Committees, with the time and place of holding, whether regular or special, and, if special, how authorized, the notice given, the names of those present at such meetings and the proceedings of such meetings.

(b) Notices, seal and other duties. The Secretary shall give, or cause to be given, notice of all meetings of the Board required by the Bylaws to be given. The Secretary shall keep the seal of the Corporation in safe custody. The Secretary shall have such other powers and perform such other duties as may be prescribed by the Board or the Bylaws.

Section 5.10. Treasurer. The Treasurer shall attend to the following:

(a) Books of account. The Treasurer shall keep and maintain, or cause to be kept and maintained, adequate and correct books and records of accounts of the properties and business transactions of the Corporation, including accounts of its assets, liabilities, receipts, disbursements, gains, losses, capital, retained earnings, and other matters customarily included in financial statements. The books of account shall be open to inspection by any director at all reasonable times.

(b) Deposit and disbursement of money and valuables. The Treasurer shall deposit all money and other valuables in the name and to the credit of the Corporation with such depositories as may be designated by the Board; shall disburse the funds of the Corporation as may be ordered by the Board; shall render to the directors, whenever they request it, an account of all transactions as Treasurer and of the financial condition of the Corporation; and shall have such other powers and perform such other duties as may be prescribed by the Board or the Bylaws.

Section 5.11. Compensation. Officers shall not be compensated for their services but may receive reimbursement for expenses incurred in the performance of their duties as may be fixed or determined by the Board.

ARTICLE VI EXPENDITURES

Section 6.1. Corporation Expenditures. The Board shall adopt appropriate financial and accounting procedures for its expenditures, including criteria for reimbursement of expenditures by committee members or any director for the costs of outside experts, consultants or advisors involved in implementing the KHSa or any other purpose of the Corporation, or for costs charged by a governmental entity with authority over any applications to dispose of property pursuant to Section 851 of the California Public Utilities Code ("Section 851") or the resulting transactions.

ARTICLE VII RECORDS AND REPORTS

Section 7.1. Corporate Records. The Corporation shall keep:

- (a) Adequate and correct books and records of accounts;
- (b) Written minutes of the proceedings of its Board and Board Committees; and
- (c) The original or a copy of the Articles and Bylaws, as amended, to date.

Section 7.2. Annual Report.

(a) Financial statements shall be prepared as soon as reasonably practicable after the close of the fiscal year. The financial statements shall contain in appropriate detail the following:

(1) The assets and liabilities, including trust funds, of the Corporation as of the end of the fiscal year;

(2) The principal changes in assets and liabilities, including trust funds, during the fiscal year;

(3) The revenue or receipts of this Corporation, both unrestricted and restricted to particular purposes, for the fiscal year;

(4) The expenses or disbursements of the Corporation, for both general and restricted purposes during the fiscal year;

(5) Any transaction during the previous fiscal year to which the Corporation or a subsidiary was a party and in which any directors or officers of the Corporation or subsidiary had or has a direct or indirect material financial interest. The report must disclose the names of the interested persons involved in such transaction, stating such person's relationship to the Corporation, the nature of such person's interest in the transaction and, where practicable, the amount of such interest; and

(6) The amount and circumstances of any indemnification or advances paid during the fiscal year to any officer or director of the Corporation.

(b) Such financial statements shall be accompanied by any report thereon of independent accountants, or, if there is no such report, the certificate of an authorized officer of the Corporation that such statements were prepared without audit from the books and records of the Corporation.

(c) To the extent required by law, a report including the financial statements prescribed above shall be furnished annually to all directors of the Corporation.

ARTICLE VIII
OTHER PROVISIONS

Section 8.1. Endorsement of Documents; Contracts. Subject to the provisions of applicable law, any note, mortgage, evidence of indebtedness, contract, conveyance, or other instrument in writing and any assignment or endorsement thereof executed or entered into between the Corporation and any other person, when signed by the President, the Treasurer, or such other officer as is delegated such authority by the Board, shall be valid and binding on the Corporation in the absence of actual knowledge on the part of the other person that the signing officers had no authority to execute the same. Any such instruments may be signed by any other person or persons and in such manner as from time to time shall be determined by the Board, and, unless so authorized by the Board, no agent or employee shall have any power or authority to bind the

Corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or amount. The Corporation is under no obligation to enter into contracts for goods and services with any individual or other entity that may have created or sponsored it.

Section 8.2. Construction and Definitions. Unless the context otherwise requires, the general provisions, rules of construction, and definitions contained in the General Provisions of the California Nonprofit Corporation Law and in the California Nonprofit Public Benefit Corporation Law shall govern the construction of these Bylaws.

Section 8.3. Amendments. These Bylaws may be amended or repealed or new Bylaws adopted by a majority vote of the directors then in office, provided that the Bylaws may not be amended in such a way to cause the corporation to lose its status as a corporation which is exempt from federal income taxation as an organization described in Section 501(c)(3) of the Code.

Section 8.4. Fiscal Year. The fiscal year of the Corporation shall be determined by resolution of the Board.

Section 8.5. Corporate Seal. The Corporation may have a seal which shall be specified by resolution of the Board.

ARTICLE IX DEDICATION OF ASSETS

The property of the Corporation is irrevocably dedicated to charitable and public purposes and no part of the net earnings or assets of the Corporation shall inure to the benefit of (or be distributable to) any director or officer of the Corporation or other private person, except that the Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of its charitable and public purposes. Upon any dissolution of the Corporation, the disposition of any assets that originated as public funds shall, to the extent permitted under applicable law, including Section 501(c)(3) of the Internal Revenue Code or any corresponding section of any future federal tax code, be governed by the agreement which disbursed such funds to the Corporation.

ARTICLE X LIABILITY: INDEMNIFICATION

Section 10.1. Directors, Agents, and appointing entity. The Corporation is solely liable for all its debts and obligations. The individual property of the directors, officers, employees, or agents of the Corporation, and the entities that appointed the directors, shall not be held liable for the debts or obligations of the Corporation.

Section 10.2. Indemnification of Directors and Officers. To the fullest extent permitted by law, the Corporation shall in all cases indemnify any existing or former director or officer of the Corporation who was or is a party (or is threatened to be made a party) to any threatened or pending action, suit, or other proceeding by reason of the fact that he or she is or was a director or officer of the Corporation, or by reason of his or her conduct in any such capacity, against expenses (including, without limitation, costs of investigation and attorneys' fees, judgments, fines,

penalties, and amounts paid in settlement) actually and reasonably incurred by him or her in connection with such proceeding.

Section 10.3. Indemnification of Employees and Agents. The Corporation may indemnify any other person who was or is a party (or is threatened to be made a party) to any threatened or pending action, suit, or other proceeding by reason of the fact that he or she is or was an employee or agent of the Corporation (or is or was serving at the request of the Corporation as a director, officer, trustee, employee, partner, fiduciary, or agent of another entity), or by reason of his or her conduct in any such capacity, against expenses actually and reasonably incurred by him or her in connection with such proceeding. Such indemnification shall be subject to any restrictions imposed by applicable law or by the Board in its discretion.

Section 10.4. Advance Payment of Expenses. In its discretion the Board may, to the extent permitted by applicable law and on such conditions as it deems appropriate, authorize the Corporation to pay or reimburse costs of investigation, attorneys' fees, and other expenses incurred by a person entitled to reimbursement under this Article, even in advance of the final disposition of the proceeding in question.

Section 10.5. Nonexclusive Remedy; Benefit. The rights provided by this Article shall not be deemed exclusive of any other right of indemnification or payment provided by contract, the Articles, vote of directors, or otherwise. Any right of indemnity or payment arising under this Article shall continue as to a person who has ceased to hold the office or position in which such right arose; shall inure to the benefit of his or her heirs, executors, and administrators; and shall survive any subsequent amendment of this Article.

Section 10.6. Insurance. The Corporation may, at the discretion of the Board, purchase and maintain insurance on behalf of the persons described in Sections 10.2 and 10.3 against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his or her status as such, whether or not the Corporation would have the power to indemnify such person under the laws of the State of California.

ARTICLE XI CONFLICTS OF INTEREST

Section 11.1. Fiduciary Obligation. In conducting the affairs of the Corporation, each director shall owe a fiduciary obligation exclusively to the Corporation, and not to any other person or entity, including the entity that appointed such director to the Board of the Corporation.

Section 11.2. Statement of Potential Conflicts. Prior to taking his or her position on the Board, and annually thereafter, each director shall submit in writing to the President of the Board a list of all businesses and other organizations of which he or she is an officer, director, trustee, member, owner (either as a sole proprietor or a partner), a shareholder (other than a *de minimis* ownership interest), employee or agent with which the Corporation has, or might be expected to have, a relationship or a transaction in which the director might have an interest conflicting with the fiduciary obligation stated in Section 11.1. The statements shall be made available to all directors.

Section 11.3. Conduct of Meetings of the Board of Directors When a Conflict Exists. At such time as any matter comes before the Board which involves or may involve a conflict of interest, the affected director shall make known the potential conflict, whether disclosed by his or her written statement or not. Such director shall answer any questions that might be asked of him or her and shall disclose all material facts. At the request of the President, or the request of the Vice-President if the director with a conflict is the President, such director shall withdraw from the meeting for so long as the matter shall continue under discussion. If by withdrawing there is no longer a quorum, consideration of the matter shall be rescheduled until such time when there is a quorum despite the withdrawn director.

Section 11.4. Effect of Conflict. A director may be interested, directly or indirectly, in any contract, transaction or act relating to or incidental to the operations conducted by the Corporation, and may freely make contracts, enter into transactions, or otherwise act for or on behalf of the Corporation in such matters; provided that (i) the direct or indirect interest of the director in the proposed contract, transaction or act shall first be disclosed to and approved by the Board, (ii) any director directly or indirectly interested in the contract, transaction or act shall refrain from voting on the matter, and (iii) no contract, transaction or act shall be entered into or taken on behalf of the Corporation if such contract, transaction or act would jeopardize the Corporation's tax-exempt status under Section 501(c)(3) of the Code.

* * * * *

EXHIBIT 1

- A. The following entities may appoint two directors as provided in Section 3.2(b) of the Bylaws.

American Rivers
California Trout
Klamath Riverkeeper
Northern California Council, Federation of Fly Fishers
Salmon River Restoration Council
Sustainable Northwest
Trout Unlimited

- B. The following entities may appoint one director as provided in Section 3.2(b) of the Bylaws.

Institute for Fisheries Resources
Pacific Coast Federation of Fishermen's Associations

Attachment B

Oregon Department of Environmental Quality Water Quality Certification

September 7, 2018

**Clean Water Act Section 401 Certification
for the
Klamath River Renewal Corporation
License Surrender and Removal of
the Lower Klamath Project
(FERC No. 14803)
Klamath County, Oregon**

Upon Federal Energy Regulatory Commission (FERC) issuance of a surrender order for the removal of the Lower Klamath Project (the "Project"), the Klamath River Renewal Corporation (KRRC or Licensee) must comply with the following section 401 water quality certification conditions:

1. Proposed Action

The KRRC proposes to remove J.C. Boyle Dam, J.C. Boyle powerhouse and all appurtenant facilities consistent with the procedures and schedule described in the Klamath Hydroelectric Settlement Agreement (KHSA) and associated Detailed Plan, the application for section 401 water quality certification, and the September 30, 2017 Technical Support Document, which by this reference, are incorporated in their entirety (the "Proposed Action"). In accordance with applicable law, the Licensee shall notify DEQ if FERC authorizes modification to the Proposed Action to allow DEQ to determine whether such changes may affect compliance with water quality standards that may require amendment of this certification.

2. Water Quality Management Plan

The Licensee shall submit to DEQ a Water Quality Management Plan (WQMP) for review and approval within 90 days of issuance of the surrender order. Upon approval by DEQ, the Licensee shall file the WQMP with FERC and implement the WQMP in accordance with its terms.

At a minimum, the WQMP shall include the following information:

- a) Water Quality Monitoring Plan Content
 - i. Data collection protocol, analytical methods, and laboratory method reporting limits;
 - ii. Location and description of monitoring points;
 - iii. Flow monitoring at USGS gauges 11509500 and 11510700;
 - iv. Applicable compliance criteria and associated compliance time schedule;
 - v. Instrument calibration schedule and procedures;
 - vi. Data validation procedures and quality assurance methodology;
 - vii. Contingency procedures for inoperable or malfunctioning equipment; and
 - viii. Data interpretation procedures, and
 - ix. Adaptive management plan.
- b) Monitoring Locations

The Water Quality Management Plan shall establish monitoring stations at the following monitoring locations:

Station	Existing USGS Location	Approximate River Mile	Measurement Type
Keno	USGS 11509500	RM 231.9	Flow, data sonde, grab
JC Boyle Powerhouse	USGS 11510700	RM 219.7	Flow, data sonde, grab

- i. The Licensee shall secure all field equipment as necessary to ensure safe reliable placement, stability, and retrieval during seasonally high flows and drawdown conditions;
- ii. The Licensee shall install monitoring equipment as necessary to meet data collection schedule as described in Section 3(d) or an alternate schedule approved by DEQ;

c) Parameters

The WQMP shall include monitoring for the following parameters:

Continuous Data Sonde Collection. The Licensee shall maintain operable data sondes and collect continuous measurements for the following parameters:

- i. Temperature;
- ii. Conductance;
- iii. pH;
- iv. Dissolved oxygen, oxygen saturation; and
- v. Turbidity

Grab Sample Collection. The Licensee shall collect grab samples for the following parameters:

- vi. Nitrogen: ammonia, nitrate, nitrite, total nitrogen;
- vii. Phosphorus: orthophosphate, organic phosphorus, total phosphorus;
- viii. Carbon: dissolved organic carbon, particulate carbon;
- ix. Chlorophyll-a; and
- x. Suspended sediment concentration.

d) Monitoring Frequency and Duration

- i. Initiating data collection: The Licensee shall begin sample and data collection at least 12 months prior to initiating drawdown of J.C. Boyle Reservoir unless otherwise approved by DEQ;
- ii. Data sonde sampling frequency: The Licensee shall record data at 15-minute intervals.
- iii. The Licensee shall collect grab samples for suspended sediment concentrations per the following schedule:
 - A. Twice monthly through September of the drawdown year;
 - B. Monthly beginning October 1 of the drawdown year.
- iv. The Licensee shall collect all other grab samples monthly;
- v. Duration: The Licensee shall monitor water quality in accordance the schedule in WQMP for a minimum of four years after initiating reservoir drawdown. Upon receipt and review of annual water quality monitoring reports DEQ may, at its discretion, continue or discontinue the requirement to monitor certain water quality parameters as warranted by water quality conditions.

e) Suspended Sediment Load

The Licensee shall propose procedures to quantify sediment export during and following reservoir drawdown using suspended sediment concentrations and flow measurements recorded at USGS gauges 11510700 and 11509500 and other methodologies as appropriate. Upon approval by DEQ, the Licensee shall implement this methodology.

f) **Non-Reservoir Drawdown Activities**

The Licensee shall propose procedures to monitor turbidity at the locations of actions that may discharge or increase sedimentation in runoff to the Klamath River and its tributaries. Except for activities that occur within the 24-month compliance time period identified in Section 3, the Licensee shall monitor turbidity approximately 100 feet upstream and 300 feet downstream during proposed activities at the following locations:

- i. Activities to maintain fish passage as required by Section 4(a);
- ii. J.C. Boyle scour hole restoration as required by Section 8(c);
- iii. Removal of recreation areas required by Section 8(d);
- iv. Backfilling and restoring the J.C. Boyle powerhouse tailrace as required by Section 8(f).

g) **Water Quality Reporting**

The Licensee shall present, summarize, and interpret water quality data in the Annual Compliance Report prepared in accordance with Section 11 of this certification. Water quality data shall be presented using graphs, tables, or other means to clearly demonstrate trends, relationships, and compliance. Raw data must be made available to DEQ either from accessible external websites, CDs, or other means to effectively transfer electronic data files.

3. Compliance Time Schedule

Pursuant to OAR 340-041-0185(5), DEQ establishes a compliance time schedule of 24 months following drawdown after which dam removal is not expected to cause an exceedance of Oregon water quality standards. If water quality monitoring demonstrates that project actions may contribute to exceedances of the applicable water quality standards beyond the compliance time schedule established by this certification, DEQ may require the Licensee to develop an adaptive management plan in consultation with DEQ, which includes alternative measures, an assessment of impacts, and a schedule to achieve compliance. Once approved by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval.

4. Biological Criteria; Protection of Beneficial Uses; Other Requirements of State Law

a) **Fish Passage**

- i. The Licensee shall provide or maintain fish passage at all artificial obstructions created or affected by the Proposed Action that prevent or delay the migration of native migratory fish;
- ii. The Licensee shall, in consultation with ODFW and subject to approval by DEQ, remove or modify artificial fish barriers created or affected by the Proposed Action until the effective date of license surrender at all locations where native migratory fish are currently or have historically been present. Until the effective date of license surrender the Licensee shall reduce or eliminate project-related obstructions such as sediment barriers and erosional head cuts resulting in a vertical step higher than six inches;
- iii. Potential artificial barrier locations may include but are not limited to the following:
 - A. Topsy Grade Road culverts;
 - B. Unnamed tributary north of Keno Access Road;

C. Spencer Creek.

b) Aquatic Resource Measure AR-6: Sucker

The Licensee shall implement Aquatic Resource Measure AR-6 presented in Appendix H of the Technical Support Document (KRRC 2017) to mitigate project effects on adult Lost River Sucker and Shortnose Sucker in J.C. Boyle Reservoir prior to drawdown.

c) Western Pond Turtle Mitigation

Subject to approval by DEQ, in consultation with ODFW, the Licensee shall conduct abundance and overwintering studies. The Licensee shall, as DEQ deems warranted, implement appropriate mitigation actions to reduce potential impacts to Western Pond Turtle populations prior to drawdown of JC Boyle Reservoir. DEQ's determination of the need for both initiation and extent of mitigation actions, if any, shall be based upon ongoing survey data, anticipated impacts, and potential additional impacts associated with capture and transport.

d) On-Site Septic Systems

To reduce the potential for bacterial pollution, the Licensee shall decommission Lower Klamath Project on-site septic systems proposed for removal in accordance with Oregon Administrative Rule Chapter 340, Division 71.

e) NPDES Construction Stormwater Permit

The Licensee shall register with DEQ for coverage under National Pollution Discharge Elimination System general permit 1200-C before any construction activities occur that cumulatively disturb more than one acre of and may discharge stormwater to surface waters of the state.

5. Reservoir Drawdown and Diversion Plan

Within 90 days of issuance of the surrender order, the Licensee shall submit to DEQ for review and approval a Reservoir Drawdown and Diversion Plan. Upon approval by DEQ, the Licensee shall file the Reservoir Drawdown and Diversion Plan with FERC and implement the plan upon receipt of all required authorizations. The Reservoir Drawdown and Diversion Plan shall propose drawdown procedures, schedule, and monitoring efforts. At a minimum, the plan shall include the following elements:

a) Drawdown Procedure

The plan shall include the following minimum information:

- i. Description of all relevant reservoir drawdown facilities;
- ii. Flood frequency evaluation;
- iii. Anticipated drawdown rates and schedule;
- iv. Slope-stability analysis;
- v. Schedule for the sequenced removal of structural elements whose removal will affect discharge during drawdown.

b) Monitoring

The plan should include the following:

- i. Location, schedule, and installation procedures for piezometer wells proposed for the upstream shell and core of J.C. Boyle Dam and procedures to monitor water levels and pore pressure at these locations;
- ii. Description of all proposed survey monuments and inclinometer installations to monitor slope stability during and following drawdown;
- iii. Visual monitoring schedule for evidence of potential slumping, cracking, or slope failure of dam embankment during dam removal;

- iv. Monitoring of J.C. Boyle Reservoir elevation and stream flow at USGS gauge 11509500 below Keno Reservoir and USGS gauge 11509500 below J.C. Boyle powerhouse during drawdown.
- c) Contingency and Notification Procedures
The plan shall include procedures to assess and respond to confirmed or suspected issues including but not limited to the following:
 - i. Obstructions to reservoir discharge caused by physical blockages, mechanical failure, or other conditions that may restrict outflow;
 - ii. Embankment instability, slumping, loss of erosion protection;
 - iii. Cultural resource discovery;
 - iv. Other events that directly or indirectly affect reservoir drawdown schedule.
- d) Notification
KRRC shall notify DEQ within 72 hours of an event that may substantially delay drawdown or cause the timeline to complete drawdown to exceed the anticipated schedule.

6. Reservoir Area Management Plan

Within 90 days of issuance of a license surrender order from FERC, the Licensee shall submit to DEQ a Reservoir Area Management Plan for review and approval. Upon approval by DEQ, the Licensee shall file the Reservoir Area Management Plan with FERC and implement the plan upon receipt of all required authorizations. The plan shall include the following elements.

- a) Reservoir Restoration Activities
The plan should include procedures to stabilize and restore the former reservoir area following dam removal. The plan should include the following:
 - i. Performance criteria for evaluating restoration efforts to meet the following objectives:
 - A. Unobstructed stream continuity;
 - B. Fish passage;
 - C. Sediment stability;
 - D. Invasive exotic vegetation abatement and native vegetation cover establishment.
 - ii. Proposed actions for meeting plan objectives including:
 - A. Actions to ensure tributary connectivity following drawdown;
 - B. Strategies to create or enhance wetlands, floodplain, and off-channel habitat features;
 - C. Actions to improve revegetation success by enhancing floodplain roughness; Locations for placement of large wood or other structures to improve channel margin complexity;
 - ii. The Licensee shall not use nitrogen- or phosphorus-based fertilizers in hydroseeding applications unless expressly authorized by DEQ.
- b) Monitoring
 - i. The Licensee shall annually conduct aerial LiDAR reconnaissance surveys of the affected area to measure sediment stability and estimate the volume of sediment export following reservoir drawdown. Annual sediment stability monitoring shall be supplemented with visual inspections, physical measurements, and photo-documentation at monitoring locations identified in the Reservoir Area Management Plan;

- ii. The Licensee shall twice annually conduct surveys to determine the area of invasive exotic vegetation and native vegetation cover in the reservoir restoration area;
 - iii. The Licensee shall annually inspect mainstem Klamath River and affected tributaries for the presence of physical barriers to volitional fish passage. Annual inspections shall occur following the wet season.
 - iv. Monitoring is required for a minimum of three years following completion of reservoir drawdown.
- c) Adaptive Management
- If monitoring demonstrates that runoff from exposed embankment areas may cause erosion, sedimentation, or a lowering of water quality DEQ may require the Licensee to analyze the situation and propose an appropriate corrective response. Corrective actions may include measures to increase soil stability through additional plantings, irrigation to maintain revegetated areas, contouring sediment to reduce slope, adding energy dissipating features such as large wood or boulders, modifying stream channel slope, or other methods deemed appropriate to achieve the goals and objectives of the plan. Upon DEQ approval, the Licensee shall implement the corrective measures.

7. Remaining Facilities and Operations Plan

Within six months of license surrender and prior to initiating the Proposed Action, the Licensee shall submit to DEQ a Remaining Facilities and Operations Plan for review and approval. Upon approval by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval. The Remaining Facilities and Operations Plan shall include, at a minimum, the following information:

- a) A description of all Project facilities and/or structures that will not be physically removed or permanently modified during project implementation;
- b) A description of all potential water quality impacts associated with retaining proposed project structures;
- c) Proposed measures, including but not limited to potential modifications and best management practices, to reduce potential water quality impacts associated with retaining Project facilities and/or structures; and
- d) Provisions deemed necessary by DEQ to ensure that any ongoing measures will be implemented once title of the Lower Klamath Project facilities and/or responsibility for operations is transferred to another entity, which shall not occur later than the effective date of surrender of FERC license No. P-14803.

8. Site Restoration, Erosion and Sediment Control

- a) Erosion and Sediment Control Plan
- Within 90 days of issuance of a surrender order, the Licensee shall submit to DEQ an Erosion and Sediment Control Plan for review and approval. Once approval by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval. The ESCP shall include best management practices to minimize pollution from sediment erosion caused by facilities removal and restoration activities. The Licensee and its contractors shall ensure the following actions are implemented to minimize sediment runoff during project activities:
- i. Maintain an adequate supply of materials necessary to control erosion at the project construction site;

- ii. Deploy compost berms, impervious materials, or other effective methods during rain events or when stockpiles are not moved or reshaped for more than 48 hours. Erosion of stockpiles is prohibited;
 - iii. Inspect erosion control measures daily and maintain erosion control measures as often as necessary to ensure the continued effectiveness of measures. Erosion control measures must remain in place until all exposed soil is stabilized;
 - iv. If monitoring or inspection shows that the erosion and sediment controls are ineffective, the Licensee must make repairs, install replacements, or install additional controls as necessary;
 - v. If sediment has reached 1/3 of the exposed height of a sediment or erosion control the Licensee must remove the sediment to its original contour;
 - vi. Use removable pads or mats to prevent soil compaction at all construction access points through, and staging areas in, riparian or wetland areas to prevent soil compaction, unless otherwise authorized by DEQ;
 - vii. Flag or fence off wetlands not specifically authorized to be impacted to protect from disturbance and/or erosion;
 - viii. Place dredged or other excavated material on upland areas with stable slopes to prevent materials from eroding back into waterways or wetlands;
 - ix. Place clean aggregate at all construction entrances, and utilize other BMPs, including, but not limited to truck or wheel washes, when earth-moving equipment is leaving the site and traveling on paved surfaces. The tracking of sediment off-site by vehicles is prohibited.
- b) J.C. Boyle Disposal Site
- i. The Licensee shall place earthen material generated during deconstruction of J.C. Boyle Dam in the disposal site located near the right abutment of the dam. Final contours, elevation, and slope of the disposal site shall reflect the design specifications presented in the J.C. Boyle Right Abutment Disposal Site Plan & Section diagram presented as Figure 5.2-8 of the Technical Support Document (KRRRC 2017) or subsequent version approved by DEQ;
 - ii. The Licensee shall implement inspection procedures to identify and divert non-earthen material from placement in the J.C. Boyle disposal site location;
 - iii. Site preparation, grading, and vegetative restoration shall be performed in accordance with the ESCP to reduce the potential for erosion and sediment runoff;
 - iv. The Licensee shall inspect the J.C. Boyle disposal site annually for at least five years following completion or an alternate schedule approved by DEQ. The Licensee shall submit to DEQ an Annual Report in accordance with Section 11, which includes inspection records documenting the physical condition of cover placement, status of revegetation, evidence of erosive conditions or sediment runoff, and corrective actions performed or proposed to ensure long-term stability.
- c) J.C. Boyle Scour Hole Restoration
- i. The Licensee shall restore the eroded scour hole beneath the J.C. Boyle emergency spillway based on the design specifications presented in the J.C. Boyle Forebay Spillway Scour Hole Backfill Plan & Sections diagram presented as Figure 5.2-9 in the Technical Support Document (KRRRC 2017) or subsequent version approved by DEQ;
 - ii. The Licensee shall prepare the site and source material as necessary to achieve stable, long-term placement of fill and cover material;
 - iii. Site preparation and grading shall be performed in accordance with the ESCP to reduce the potential for erosion and sediment runoff;
 - iv. The Licensee shall inspect the restored scour hole for annually for at least five years or an alternate schedule approved by DEQ. The Licensee shall submit to DEQ an

Annual Report in accordance with Section 11, which includes inspection records documenting the physical condition of cover placement, status of revegetation, evidence of erosive conditions or sediment runoff, and corrective actions performed or proposed to ensure long-term stability.

d) Recreation Areas

i. Topsy Campground

The Licensee shall remove all permanent water-related improvements at Topsy Campground including boat launches, floating dock, fishing pier and concrete. Compacted surface areas shall be prepared in a manner that increases surface permeability and reduces surface runoff. The Licensee shall grade, seed and replant affected areas in a manner that promotes riparian revegetation. Site restoration shall be performed according to the ESCP prepared in accordance with Section 9(a).

ii. Pioneer Park

The Licensee shall remove all features at the two separate day use areas on the east and west side of J.C. Boyle Reservoir identified as Pioneer Park. Compacted surface areas shall be prepared in a manner that increases surface permeability and reduces surface runoff. The Licensee shall grade, seed and replant affected areas in a manner that promotes riparian revegetation. Site restoration shall be performed according to the ESCP prepared in accordance with Section 9(a).

e) J.C. Boyle Power Canal

The Licensee shall remove all concrete wall portions of the J.C. Boyle power canal except for shotcrete applied to the upstream wall to maintain stability against erosion. Concrete shall be placed in the J.C. Boyle emergency spillway scour hole in accordance with Section 8(c). Alternatively, material may be placed at the disposal site in accordance with Section 8(b). If the Licensee removes the invert slab, the Licensee shall restore the former canal area by decompacting the canal floor to support revegetation.

f) J.C. Boyle Powerhouse Tailrace

- i. The Licensee shall select and place material near the mouth of the former tailrace channel in a manner that resists erosion and scour;
- ii. Tailrace backfill material sourced from beneath industrial areas such as the adjacent substation and maintenance building must first be screened for the presence of hazardous materials prior to use as fill material in the tailrace. Soils containing oil or hazardous substances may not be used as fill below the ordinary high water level.
- iii. The Licensee shall perform all restoration activities in accordance with the ESCP to reduce the potential for erosion and sedimentation.

9. Waste Disposal and Management Plan

Within 90 days of issuance of a surrender order, the Licensee shall submit to DEQ a Waste Disposal and Management Plan for review and approval. Once approved by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval. The plan shall describe procedures for characterizing and appropriately managing all waste streams generated during facilities removal. The plan shall, at a minimum, include the following components:

a) Hazardous Materials

The plan must include the following information:

- i. Prior to drawdown, the Licensee shall commission a Phase I Environmental Site Assessment to identify the presence, nature, and quantities of hazardous substances associated with Lower Klamath Project facilities;

- ii. Prior to drawdown, the Licensee shall implement recommendations of the Phase I ESA including, as necessary, a Phase II ESA to characterize the magnitude, extent, and risk of hazardous materials in the environment. In consultation with DEQ, the Licensee shall undertake remedial actions to mitigate risks from residual hazardous materials in accordance with applicable state and federal law;
- iii. Procedures to manage disposal of hazardous and solid wastes in compliance with applicable state and federal law;
- iv. Comprehensive investigative and sampling procedures to confirm adequate abatement of hazardous materials;
- v. Procedures to manage all records, disposal receipts and/or manifests confirming transportation and disposal of hazardous materials.

The Licensee shall file a report with DEQ documenting the investigation, management and disposal of hazardous materials within 90 days of completing actions or an alternate schedule approved by DEQ.

b) **Deleterious Waste Materials:**

The Licensee is prohibited from placing biologically harmful materials including, but not limited to petroleum products, chemicals, cement cured less than 24 hours, welding slag and grindings, concrete saw cutting by-products, sandblasted materials, chipped paint, tires, wire, steel posts, and asphalt where such materials could enter waters of the state, including wetlands. The Licensee must do the following:

- i. Cure concrete, cement, or grout for at least 24 hours prior to any contact with flowing waters;
- ii. Use only clean fill, free of waste and polluted substances;
- iii. Employ all practicable controls to prevent discharges of spills of deleterious materials to surface or ground water;
- iv. Maintain at the project construction site, and deploy as necessary, an adequate supply of materials needed to contain deleterious materials during a weather event;
- v. Remove foreign materials, refuse, and waste from the project area; and
- vi. Employ general good housekeeping practices at all times.

10. Spill Response

- a) The Licensee shall maintain a Spill Prevention, Control, and Countermeasure Plan in effect at all times in accordance with 40 CFR Part 112. The following specific requirements apply during site activities:
 - i. Vehicle staging, cleaning, maintenance, refueling, and fuel storage must be performed at least 150 feet from waters of the state. An exception may be authorized upon written approval by DEQ if all practicable prevention measures are employed and this distance is not possible because:
 - A. Physical constraints that make this distance not feasible (e.g., steep slopes, rock outcroppings);
 - B. Natural resource features would be degraded as a result of this setback;
 - C. Equal or greater spill containment and effect avoidance is provided even if staging area is less than 150 feet of any waters of the state.
 - D. If staging areas are within 150 feet of any waters of the state, as allowed under subsection (a)(iii) of this condition, full containment of potential contaminants must be provided to prevent soil and water contamination, as appropriate.
 - ii. All vehicles operated within 150 feet of any waters of the state must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected in the

- vehicle staging area must be repaired before the vehicle resumes operation;
 - iii. Before operations begin and as often as necessary during operation, equipment must be steam cleaned (or undergo an approved equivalent cleaning) until all visible external oil, grease, mud, and other visible contaminants are removed if the equipment will be used below the bank of a waterbody;
 - iv. All stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 feet of any waters of the state must be covered by an absorbent mat to prevent leaks, unless other suitable containment is provided to prevent potential spills from entering any waters of the state
 - v. An adequate supply of materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials) needed to contain spills must be maintained at the project construction site and deployed as necessary;
 - vi. All equipment operated in state waters must use biodegradable hydraulic fluid. A maintenance log documenting equipment maintenance inspections and actions must be kept on-site and available upon request.
- b) Spill Incident Reporting:
- i. If petroleum products, chemicals, or any other deleterious materials are discharged into state waters, or onto land with a potential to enter state waters, the Licensee must promptly report the discharge to the Oregon Emergency Response System (OERS), at 1-800-452-0311);
 - i. If a release of petroleum products, chemicals, or other materials results in distressed or dying fish, the Licensee must immediately do the following: cease operations; take appropriate corrective measures to prevent further environmental damage; collect fish specimens and water samples; and notify DEQ, ODFW and other appropriate regulatory agencies.

11. Annual Compliance Report

The Licensee shall prepare and submit to DEQ an Annual Compliance Report by April 1 for the preceding year in which activities are performed pursuant to conditions required by this certification. The Annual Compliance Report shall include, as appropriate:

- a) Monitoring data including graphical representations, as appropriate;
- b) Records documenting required consultations and/or approvals;
- c) Narrative interpretation of results;
- d) Compliance evaluations;
- e) Efforts undertaken by the Licensee to achieve the objectives of the Aquatic Resource mitigation measures set forth in section 4 of this certification;
- f) A comprehensive presentation of all actions performed in accordance with the Reservoir Area Management Plan and include all data, observations, measurements, photo-documentation, findings and recommendations. The report shall compare reservoir restoration conditions with the objectives of the Reservoir Area Management Plan and document corrective or adaptive methods performed or recommended to meet those objectives.
- g) Efforts undertaken by the Licensee to achieve the objectives of the Groundwater Well Management Plan, including all well installations, field activities, outreach efforts, and monitoring results. The report shall include drill logs and well as-builts for project-installed

monitoring wells; a comparison with installation depths and techniques from representative nearby wells; the results of any pumping or drawdown tests; an interpretation of the results; mitigation to improve water quality or quantity from affected wells; and findings and recommendations; and

- h) Efforts undertaken and anticipated completion of site restoration activities required in this certification.

The Licensee may also include a request for DEQ to consider approval of alternative or additional measures. As used in this section, alternative measures are methods or approaches not included in the Proposed Action that will provide or assist in providing, reasonable assurance that the Proposed Action will not cause or contribute to a violation of water quality standards beyond the compliance schedule described in Section 3. DEQ shall respond to any request for consideration of alternative measures within 60 days of receipt. DEQ shall notify the Licensee in writing of its approval or denial of the proposed alternative measures. Following DEQ approval, the Licensee shall implement the plan in accordance with the approved plan's terms and schedule, including any modifications made to the plan by DEQ as a condition of approval.

12. General

- a) Section 401 Certification Modification

DEQ, in accordance with Oregon and Federal law including OAR Chapter 340, Division 48 and, as applicable, 33 USC 1341, may modify this Certification to add, delete, or alter Certification conditions as necessary to address:

- i. Adverse or potentially adverse Project effects on water quality or designated beneficial uses that did not exist or were not reasonably apparent when this § 401 certification was issued;
- ii. TMDLs (not specifically addressed above in these section 401 certification conditions);
- iii. Changes in water quality standards;
- iv. Any failure of these § 401 Certification Conditions to protect water quality or designated beneficial uses as expected when this § 401 Certification was issued; or
- v. Any change in the Project or its operations that was not contemplated by this § 401 Certification that might adversely affect water quality or designated beneficial uses.

- b) Project Modification

The Licensee shall obtain DEQ review and approval before undertaking any change to the Proposed Action that may affect water quality other than modifications authorized or required by this certification.

- c) Inspection

The Licensee shall allow DEQ such access as necessary to inspect the Project area and Project records required by these section 401 Certification Conditions and to monitor compliance with these section 401 Certification Conditions, upon reasonable notice and subject to applicable safety and security procedures when engaged in such access.

- d) Posting

The Licensee shall maintain a copy of the section 401 water quality certification at the project site for the duration of the project. The certification shall be available for review by the Licensee and its contractors, as well as by DEQ, the US Army Corps of Engineers, National Marine Fisheries Service, Oregon Department of Fish and Wildlife,

and other appropriate state and local government inspectors for the duration of the project.

- e) **Water Quality Standards Compliance**
Notwithstanding the conditions of this Certification, no wastes shall be discharged and no activities shall be conducted which will violate state water quality standards.
- f) **Conflict Between Certification Conditions and Application**
To the extent that there are any conflicts between the terms and conditions in this certification and how the Proposed Action, activities, obligations, and processes are described in the Application, the terms and conditions in this certification, as interpreted by DEQ, shall control.

13. Project Specific Fees

In accordance with ORS 543.080, the Licensee shall pay project-specific fees, in 2018 dollars adjusted according to the formula in Section 13b below, to DEQ for costs of overseeing implementation of this certification. The licensee shall pay an initial pro-rated payment to DEQ within 30 days of license surrender for the period from the date of license surrender to the first June 30, which follows license surrender.

- a) **Schedule**
The Licensee shall pay project-specific fees to DEQ, made payable to State of Oregon, Department of Environmental Quality, according to the following schedule:

FERC License Surrender	Annual Project-Specific Fee Subject to Adjustment	Due
Year 1	\$ 42,578	Within 30 days
Year 2	\$ 40,000	July 1
Year 3	\$ 33,219	July 1
Year 4	\$ 7,254	July 1
Year 5	\$ 7,254	July 1

- b) **Annual Adjustment**
Fee amounts shall be adjusted annually, according to the following formula:

$$AD = D \times (CPI-U)/(CPI-U-June 2018)$$

Where:

AD = Adjusted dollar amount payable to agency.
D = Dollar amount pursuant to Section 13a and Section 13b above,
CPI-U = the most current published version of the Consumer Price Index-Urban.
The CPI-U is published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted by written agreement between DEQ and the Licensee.

- c) **Payment Schedule**
Fees shall be paid pursuant to a written invoice from DEQ. Except as provided below, project-specific fees shall be due on July 1 of each year following issuance of the new FERC License. The Licensee shall pay an initial prorated payment to DEQ within 30 days of license surrender, for the period from the date of license surrender to the first June 30 that follows license surrender.

d) Credits

DEQ will credit against this amount any fee or other compensation paid or payable to DEQ, directly or through other agencies of the State of Oregon, during the preceding year (July 1 to June 30) for DEQ's or ODFW's costs of oversight.

e) Expenditure Summary

DEQ shall provide the Licensee with a biennial summary of project specific expenditures.

f) Duration

The project-specific fee shall expire 5 years after the first July 1 following the issuance of the new FERC license, unless DEQ terminates it earlier because oversight is no longer necessary. One year before the expiration of the fee, or earlier if mutually agreed, DEQ and the Licensee shall review the need, if any, to modify, extend, or terminate the fee, in accordance with ORS 543.080. The Licensee shall pay any project-specific fee required after such review as provided in ORS 543.080.

Attachment C

Oregon Department of Environmental Quality Water Quality Certification Evaluation
and Findings Report

September 2018

Evaluation and Findings Report

Section 401 Water Quality Certification for the Removal of the Lower Klamath Project (FERC Project Number 14803)

By: Chris Stine

September 2018

Section 401 Hydropower

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DEQ is a leader in
restoring, maintaining and
enhancing the quality of
Oregon's air, land and
water.



State of Oregon
Department of
Environmental
Quality

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Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Table of Contents

Tables.....	4
Figures	4
1. Introduction and Background.....	1
2. Requirement for Certification	3
2.1 Applicable Federal and State Law	3
2.2 General Application of State Water Quality Standards	4
2.2.1 Designated beneficial uses	4
2.2.2 Narrative and Numeric Criteria.....	4
2.2.3 Anti-degradation policy	4
2.2.4 Total Maximum Daily Loads	5
3. Project Information	5
3.1 Applicant Information.....	5
Name and Address of Project Owner and Applicant	5
Name and Address of Owner’s Official Representative	5
3.2 Documents Filed in Support of Application	5
3.3 Notification of Complete Application.....	6
3.4 Waters Affected by the Project	6
3.4.1 J.C. Boyle Reservoir	6
3.4.2 J. C. Boyle Bypass Reach	6
3.4.3 Klamath River below J. C. Boyle Powerhouse, above California Border	7
3.5 Water Rights Held by Applicant.....	7
3.6 Adjacent Land Use and Ownership	8
3.7 Ecological Setting	8
3.7.1 General Locale	8
3.7.2 Geology	9
3.7.3 Hydrology	10
4. Proposed Action.....	12
4.1 Reservoir Drawdown and Diversion.....	12
4.1.1 Reservoir Drawdown Procedures.....	13
4.1.2 Reservoir Drawdown Monitoring	13
4.2 Facilities Removal	13

4.2.1 Removal Limits.....	13
4.2.2 Facilities Removal Methods.....	15
4.2.3 Staging Areas and Waste Disposal Sites.....	15
4.2.4 Recreational Facility Removal.....	16
4.3 Reservoir Management	17
4.3.1 Reservoir Restoration.....	17
4.3.2 Upland Restoration	18
4.4 Other Project Elements	19
4.4.1 Aquatic Resource Measures.....	19
4.4.2 Other Resource Management Plans	20
5. Klamath River Water Quality	21
5.1 Beneficial Uses in the Klamath River.....	21
5.2 Native and Extirpated Fish Species	22
5.3 Threatened and Endangered Aquatic Species.....	23
5.4 Water Quality Impairment in the Klamath River.....	25
5.5 Current Water Quality.....	25
6. Water Quality Standards	27
6.1 Statewide Narrative Criteria.....	27
6.2 Bacteria	28
6.3 Biocriteria	28
6.4 Dissolved Oxygen.....	29
6.5 Nuisance Phytoplankton Growth	30
6.6 pH.....	31
6.7 Temperature	31
6.8 Toxic Pollutants	32
6.9 Compliance Time Schedule	32
6.9.1 Basin-Specific Criteria (Klamath).....	32
6.9.2 DEQ Finding: Compliance Time Schedule for Dam Removal.....	34
7. Evaluation and Findings	34
7.1 Reservoir Drawdown	34
7.1.1 Evaluation of Reservoir Drawdown on Water Quality	35
7.1.2 Findings: Reservoir Drawdown	42
7.2 Facilities Removal	43
7.2.1 Evaluation of Facilities Removal on Water Quality	43
7.2.2 Findings: Facilities Removal	45

7.3 Reservoir Management and Restoration	46
7.3.1 Evaluation of Reservoir Management and Restoration on Water Quality	46
7.3.2 Findings: Reservoir Management	49
8. Antidegradation.....	50
9. Compliance with CWA Sections 301, 302, 303, 306 and 307.....	52
10. Evaluation of other Appropriate Requirements of State Law	53
10.1 Department of Water Resources	53
10.2 Division of State Lands.....	53
10.3 Department of Land Conservation and Development.....	54
10.4 Department of Fish and Wildlife	56
10.5 Department of Environmental Quality.....	57
11. Public Comment.....	57
12. Recommendation for Certification.....	68
References.....	69
Appendix A	70

Tables

Table 1: J.C. Boyle Water Rights	7
Table 2: Removal Limits	14
Table 3: Estimated Volume of Waste Material from Removal of J.C. Boyle Facilities	15
Table 4: Water Quality Management Plan Proposed by KRRC	20
Table 5: Current and Historical Fish Presence in Oregon Hydroelectric Reach.....	22
Table 6: Federally Listed Threatened and Endangered Species in Klamath County	24
Table 7: Oregon Conservation Strategy Listed Species.....	24
Table 8: Water Quality Impairments in Klamath River from JC Boyle to Stateline	25
Table 9: Applicable Dissolved Oxygen Criteria for Klamath Basin.....	30

Figures

Figure 1: Lower Klamath Project in the Klamath Watershed.....	2
Figure 2: USGS Stream Gage below Keno.....	10
Figure 3: Median Flows at Keno, J.C. Boyle, and Iron Gate 1960-2009.....	11
Figure 4: Flow at J.C. Boyle Power Plant (1960-2009).....	11
Figure 5: J.C. Boyle Dam	12
Figure 6: J.C. Boyle Proposed Restoration Area	17
Figure 7: Fish Use in the Klamath Basin, OAR 340, Division 041 - Figure 180A	22
Figure 8: Cross Section of J.C. Boyle Reservoir Sediments.....	35
Figure 9: Modeled Suspended Sediment Concentrations below JC Boyle - Dry Hydrology	37
Figure 10: Modeled Suspended Sediment Concentrations below JC Boyle - Median Hydrology	37
Figure 11: Modeled Suspended Sediment Concentrations below JC Boyle - Wet Hydrology.....	38

Executive Summary

On September 11, 2017, the Klamath River Renewal Corporation submitted a Clean Water Act Section 401 Water Quality Certification Application for the proposed removal of the Oregon portion of the Lower Klamath Project. The purpose of the Project is to achieve a free-flowing condition and volitional fish passage in the Klamath River. To achieve this objective, KRRC proposes to drawdown J.C. Boyle Reservoir, remove all physical project facilities as described in the application, engage in resource protection activities to mitigate impacts affected resources, and perform restoration actions to revegetate and stabilize reservoir areas.

J.C. Boyle Reservoir impounds about 1 million cubic yards of sediment. Hydraulic modeling predicts about 40 to 60 percent of the sediment will erode during drawdown. Because of its fine-grained texture, sediment is expected to remain in the water column during drawdown resulting in little accumulation in the river channel. Suspended sediment concentrations in the water column will peak in the first three months following drawdown but will decrease sharply as seasonal flows decrease. During this period, DEQ expects temporary impacts to water quality including increased turbidity and decreased dissolved oxygen. Short-duration impacts may persist into the year following reservoir drawdown depending on seasonal flow.

DEQ has established a 24-month compliance time schedule after which DEQ expects the effects of the project will no longer contribute to violations of water quality standards. To verify this, the Certification requires KRRC to monitor water quality and adaptively manage Project activities including restoration efforts to ensure these expectations are met. To protect threatened and endangered species, the Certification requires KRRC to perform certain aquatic resource mitigation measures to reduce impacts to resources potentially affected by the Project during and following dam removal. The Certification also prescribes conditions to ensure reservoir areas exposed following dam removal are effectively revegetated to reduce ongoing sources of sedimentation. Last, the Certification includes conditions to ensure the removal of project facilities are achieved in a manner that prevents or minimizes impacts on the Klamath River and its tributaries.

DEQ has evaluated the application for Clean Water Act Section 401 Water Quality Certification for consistency with the applicable provisions of the Clean Water Act Sections 301, 302, 303, 306 and 307; Oregon Administrative Rules (OAR) chapter 340, divisions 041 and 048; Oregon Revised Statute (ORS) ORS 543A.025 (2) to (4) and other appropriate requirements of state law.

DEQ finds the proposed activity will cause temporary lowering of water quality. However, removal of J.C. Boyle Dam and eliminating the effects of peaking hydroelectric operations will improve water quality and result in a net ecological benefit. Based on its evaluation of the proposed action, DEQ is reasonably assured the Project as conditioned by this Certification will comply with Oregon water quality standards, appropriate portions of the federal Clean Water Act, and relevant requirements of state law.

1. Introduction and Background

On September 23, 2016, the Klamath River Renewal Corporation submitted to the Oregon Department of Environmental Quality a request for water quality certification pursuant to section 401 of the federal Clean Water Act¹. The Klamath River Renewal Corporation proposes to remove the J.C. Boyle hydroelectric development, located in Klamath County, Oregon, consistent with the 2016 amended Klamath Hydroelectric Settlement Agreement and according to the procedures in the Detailed Plan. KRRC also proposes measures to revegetate the reservoir embankment, mitigate for impacts to aquatic and terrestrial resources, and monitor the effects of the project on water quality and other affected resources. The J.C. Boyle hydroelectric development is part of the Lower Klamath Project that also includes the Copco No.1, Copco No.2, and Iron Gate facilities in Siskiyou County, California. The removal of the project's California developments will be addressed under a separate water quality certification administered by the California State Water Resources Control Board.

The Klamath Hydroelectric Project (FERC No. 2082) was built between 1903 and 1962 in Klamath County Oregon and Siskiyou County California. The 169-MW hydroelectric project consists of seven hydroelectric developments and one non-generating dam owned and operated by PacifiCorp Energy. The U.S. Department of the Interior Bureau of Reclamation owns Link River Dam, which PacifiCorp operates in coordination with the company's hydroelectric projects. In 1956, the Federal Energy Regulatory Commission licensed the project to a 50-year term that expired on March 1, 2006. The project has operated under annual licenses issued by FERC since that time.

In 2004, PacifiCorp filed a Final License Application with FERC to relicense the Klamath Hydroelectric Project. During relicensing proceedings, PacifiCorp and more than 40 organizations, including Federal agencies, the States of California and Oregon, Native American tribes, counties, irrigators and conservation and fishing groups negotiated an agreement that would establish a process leading to the removal of PacifiCorp's hydroelectric developments associated with the lower four dams on the Klamath River. On February 18, 2010, parties to agreement, including DEQ, signed the Klamath Hydroelectric Settlement Agreement, which was amended on April 6, 2016.

In 2016, the Klamath River Renewal Corporation was established as a private, non-profit corporation to execute the duties of the Dam Removal Entity consistent with the amended KHSA. On Sept. 23, 2016, PacifiCorp and the Klamath River Renewal Corporation jointly applied to FERC to designate the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments as a new FERC project (the "Lower Klamath Project," FERC No.14803) and transfer this license to the Klamath River Renewal Corporation. On the same day, the Klamath River Renewal Corporation simultaneously filed with FERC an application for license surrender and request to decommission the project. On March 15, 2018, FERC formally separated the project into two licenses consistent with this request, but deferred action on the request to transfer the Lower Klamath Project license (FERC No. 14803) to the Klamath River Renewal Corporation.

¹ On September 11, 2017, KRRC resubmitted their application for section 401 water quality certification. DEQ accepted the refiled application on the same day.

The location of the Lower Klamath Project within the Klamath watershed is presented below in Figure 1 (KRRC 2017).

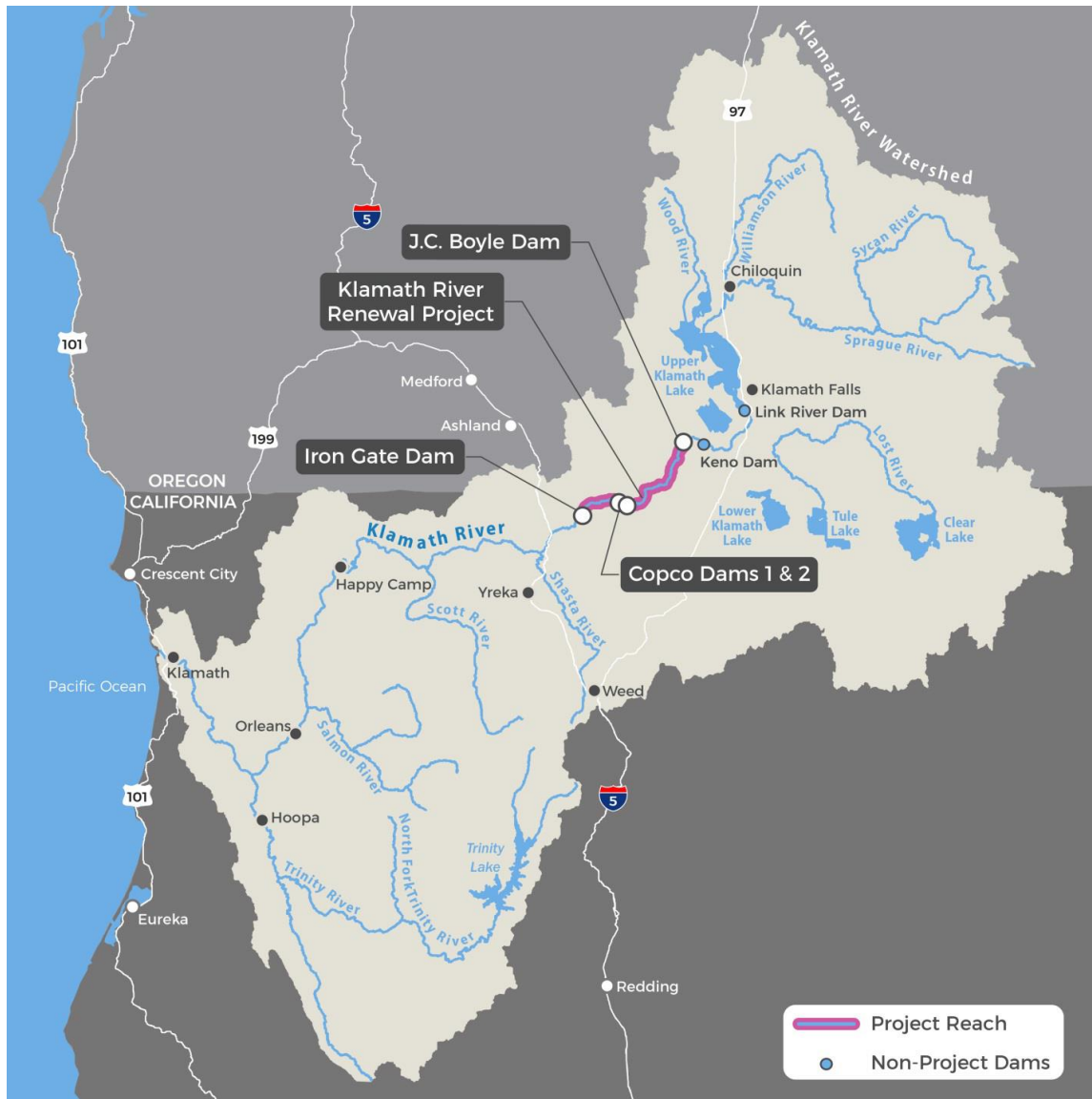


Figure 1: Lower Klamath Project in the Klamath Watershed

2. Requirement for Certification

2.1 Applicable Federal and State Law

Section 401 of the Federal Clean Water Act (33 USC §1341) requires that applicants for a federal license or permit that may cause a discharge to navigable waters provide the federal licensing or permitting agency with certification that the project will comply with state water quality standards and other relevant provisions of state law. Section 401 of the Clean Water Act requires that conditions of a state water quality certification shall become conditions of the federal license or permit. The Oregon Department of Environmental Quality is the state agency designated with the authority to certify or deny requests for section 401 water quality certification. DEQ must act on an application for certification in a manner consistent with the following federal and state requirements:

Federal Requirements

Sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act: These sections prescribe effluent limitations, water quality related effluent limitations, water quality standards and implementation plans, national standards of performance for new sources, and toxic and pretreatment effluent standards.

State Requirements

OAR 340-041 and 340-048-0005 to 340-048-0050: These rules were adopted by the Environmental Quality Commission to prescribe the state's water quality standards (OAR 340-041) and procedures for receiving, evaluating, and taking final action upon a section 401-certification application (OAR 340-048). The rules include requirements for general information such as the location and characteristics of the project, as well as confirmation that the project complies with appropriate local land use plans and any other requirements of state law that have a direct or indirect relationship to water quality.

EQC rules identify the information that must be included in an application for section 401 certification (OAR 340-048-0020(2)). The application together with information provided during public comment and interagency coordination is essential to support the following determinations made by DEQ pursuant to section 401 of the Federal Clean Water Act and state law:

- A determination whether to issue or deny certification.
- Determination of conditions appropriate to include in any granted certificate.
- Preparation of findings as required by ORS 468B.040 and ORS 197.180(1).

Additional EQC rules address the time schedule for compliance with water quality standards following the removal of J.C. Boyle dam (OAR 340-041-0185(5)).

ORS 468B.040: This state statute prescribes procedural requirements and findings with which DEQ must comply as it makes a decision on a section 401-certification application. This statute references federal law requirements, state water quality rules, and other requirements of state law regarding hydroelectric projects.

ORS 197.180(1): This statute requires state agency actions to be consistent with acknowledged land use plans and implementing regulations, or if a plan is not acknowledged, compatible with state land use goals. Findings must support the state agency action.

2.2 General Application of State Water Quality Standards

Oregon water quality standards are contained in Oregon Administrative Rule (OAR) Chapter 340, Division 41 entitled "Department of Environmental Quality Water Pollution Division 41 Water Quality Standards: Beneficial Uses, Policies, and Criteria for Oregon." The water quality standards in Division 41 are composed of three elements: beneficial uses, numeric and narrative criteria, and the antidegradation policy. DEQ develops Total Maximum Daily Loads for waterbodies not attaining water quality standards, as explained below.

2.2.1 Designated beneficial uses

The Federal Clean Water Act and Oregon water quality standards require that water quality be protected and maintained such that existing and potential beneficial uses of public waters are not impaired or precluded by degraded water quality. The regulatory approach is: (1) identify existing and potential beneficial uses (2) develop and adopt numeric and narrative criteria necessary to protect and sustain existing and potential beneficial uses; (3) establish and enforce discharge effluent limitations for each source permitted to discharge treated wastes into public waters to ensure water quality standards are not violated and beneficial uses are not impaired; and (4) establish and implement "best management practices" for a variety of land management activities to minimize water quality degradation and impairment of beneficial uses.

Beneficial uses to be protected have been identified generally for each river basin in Oregon and specifically for significant stream reaches within some basins. Some beneficial uses occur year round, and some occur in specific seasons. See Chapter 5 for the designated beneficial uses in the Klamath Basin.

2.2.2 Narrative and Numeric Criteria

The assumption is made that if water quality meets the numeric and narrative criteria for the most sensitive beneficial uses, then the criteria is fully protective of all beneficial uses. Criteria are established based on best available information at the time of adoption. Development of water quality standards is a continuing process. Conditions in a 401 water quality certification may be devised to sufficiently protect designated beneficial uses given particular facts related to proposed action. As information becomes available, numeric and narrative criteria may be revised and standards may be developed for additional parameters to protect beneficial uses. The spatial and seasonal applicability of water quality criteria is specific to each criteria. Oregon Administrative Rules (OAR 340-041) include water quality criteria that apply to specific reaches and seasons, to a particular basin, and statewide.

2.2.3 Anti-degradation policy

Oregon's antidegradation policy (OAR 340-041-0004) applies to all surface waters. The goal of the antidegradation policy is to prevent unnecessary further degradation of water quality and to protect, maintain, and enhance the quality of existing surface waters to ensure the full protection of all existing beneficial resources. For waters that meet applicable water quality standards, the policy states that the existing water quality shall be maintained and protected unless the Environmental Quality Commission makes certain rigorous findings of need. For water bodies that do not meet certain criteria, the policy prohibits further degradation.

2.2.4 Total Maximum Daily Loads

Waterbodies which fail to meet water quality criteria are designated as water quality limited pursuant to CWA section 303(d). The U.S. Environmental Protection Agency requires States to develop total maximum daily loads for waters identified as water quality-limited. A TMDL identifies the maximum pollutant load that a water body may receive from combined point and non-point sources and still meet water quality standards necessary to support all designated beneficial uses. TMDLs quantify wasteload allocations for point sources and load allocations for non-point sources. For hydroelectric projects located on a water quality-limited waterbody, a section 401 certification may serve as the means for implementing allocations assigned to the project. Rules for developing, issuing and implementing TMDLs are in OAR 340-042-0025-0080.

3. Project Information

3.1 Applicant Information

Name and Address of Project Owner and Applicant

Project Owner

PacifiCorp Energy
825 NE Multnomah Blvd. Suite 1500
Portland, OR 97232

Project Applicant

Lester Snow, President KRRC
Klamath River Renewal Corporation
423 Washington Street, 3rd Floor
San Francisco, CA 94111

Name and Address of Owner's Official Representative

Mark Bransom, KRRC Executive Director
2001 Addison Street, Suite 317
Berkeley, CA 94704
Phone: (510) 914-4199

3.2 Documents Filed in Support of Application

KRRC has filed the following documents in support of its section 401 water quality certification application for the Proposed Action:

1. Amended Klamath Hydroelectric Settlement Agreement (April 6, 2016).
2. Application for Certification Pursuant to section 401 of the Federal Clean Water Act And Oregon Law (September 23, 2016; September 11, 2017)
3. Joint Application for Approval of License Amendment and License Transfer (September 23, 2016)
4. Application for Surrender of License for Major Project and Removal of Project Works. (September 23, 2016).

5. Detailed Plan for Dam Removal – Klamath River Dams, Klamath Hydroelectric Project, FERC license No. 2082, Oregon – California. (July 2012).
6. Contact list of property owners pursuant to 18 C.F.R. §4.32(a)(3).
7. Attachment C as filed in the License Transfer Application for Project No. 2082, to describe the project works of the Lower Klamath Project.
8. Final Klamath Facilities Removal Final Environmental Impact Statement/Environmental Impact Report. (December 2012).
9. Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information. (March 2013).
10. Klamath River Renewal Project CEQA and 401 Water Quality Certifications Technical Support Document. (September 2017).
11. Findings in Support of Land Use Compatibility for Removal of John C. Boyle Dam. (May 10, 2018).

3.3 Notification of Complete Application

In accordance with OAR 340-048-0042(1), within 90 days of deeming the application complete, DEQ must notify the Applicant that the certification is granted or denied or that a further specified time period is required to process the application. DEQ will comply with this requirement upon determining the application is complete in accordance with OAR 340-048-0020.

3.4 Waters Affected by the Project

The Project is located primarily on the mainstem and tributaries to the Klamath River in the Upper Klamath River watershed. Principle water bodies affected by the Proposed Action are described below.

3.4.1 J.C. Boyle Reservoir

J.C. Boyle reservoir is an in-channel reservoir on the Klamath River from approximately RM 228.3 to RM 224.7. Spencer Creek and other small drainages discharge into the reservoir. Klamath River inflows are typically highest March through May, averaging between 1000 and 5000 cubic feet per second, and lowest in August, averaging between 500 and 750 cubic feet per second (USGS Gauge 11509500). J. C. Boyle Reservoir impounds up to 3,495 acre feet of water and covers 420 surface acres (PacifiCorp 2016). The J.C. Boyle powerhouse operates as a peaking facility in the summer when river flows are too low to operate continuously. Peaking operations occur in the late afternoon and evenings. Water levels in the reservoir fluctuate up to 3 feet daily based on power generation needs. In the remainder of the year, power generation occurs continuously (USDOI 2012). The annual normal maximum and minimum operating levels range 5 feet. The high water level of the impoundment supports perennial marshes along Spencer Creek and intermittent marshes along the margins of the reservoir.

3.4.2 J. C. Boyle Bypass Reach

The J. C. Boyle bypass reach extends approximately 4.3 miles from the base of J. C. Boyle Dam to J. C. Boyle powerhouse at RM 220.4 (PacifiCorp 2016). FERC requires a minimum release of 100 cfs below the dam into the bypass reach. A large spring source discharges 225 cubic feet per second to the Klamath

River at RM 221 and provides cool clear flow to the lower portion of the bypass reach. Additional flow in the bypass reach comes from J. C. Boyle Dam spillway releases, intake fish bypass releases, fish ladder releases, and spills from the forebay overflow chute.

3.4.3 Klamath River below J. C. Boyle Powerhouse, above California Border

The Oregon border with California is at RM 208.5, 11.9 miles below the J. C. Boyle powerhouse. For power generation, water diverts from the reservoir to supply the powerhouse with up to 2500 cubic feet per second. In the reach below the powerhouse, gage data only exists for the post-dam construction era. From 1959-2012, the Klamath River had a mean annual discharge of 1744 cubic feet per second, but discharge fluctuated from 350 cubic feet per second to 10,000 cubic feet per second depending on season and type of water year. Dry year discharge peaked around 2000 cubic feet per second, wet year discharge peaked around 10,000 cubic feet per second. Flows are highest January through April, averaging between 1000 cubic feet per second and 7000 cubic feet per second, and are lowest June through August, averaging between 400 cubic feet per second to 1000 cubic feet per second (USGS Gauge 11510700).

In September 1994, the Klamath River from J.C. Boyle powerhouse to the California border was included in the National Wild and Scenic Rivers System (Public Law 90-542; 16 U.S.C. 1271 et seq.). The US Bureau of Land Management Lakeview District manages the 11-mile reach for the outstandingly remarkable values including wildlife, fisheries, recreation, historic, and scenic qualities.

3.5 Water Rights Held by Applicant

Table 1 describes the water rights at the J. C. Boyle Hydroelectric Project.

Table 1: J.C. Boyle Water Rights

Water Right	Type	Date Effective	Location	Purpose	Capacity
HE-180	State license	1/1/1957-12/31/2006 Administratively extended annually from 2006 to present	J. C. Boyle Power Plant	Power	2500 cubic feet per second for power generation Impoundment to 2793 feet elevation
HE-180	State license	1/1/1957-12/31/2006 Administratively extended annually from 2006 to present	J. C. Boyle Power Plant	Fish use	100 cubic feet per second instream below dam for fish use 200 cubic feet per second instream below powerhouse 9 inches/hour maximum ramping rate at .5 miles below powerhouse
LL-1718	Limited license	12/4/17-11/30/18	J. C. Boyle Power Plant	Power	500 cubic feet per second

3.6 Adjacent Land Use and Ownership

Appendix A presents a list of names and addresses of property owners of land that is contiguous to the J.C. Boyle Development in Oregon (KRRC 2017)

3.7 Ecological Setting

3.7.1 General Locale

The Klamath Basin covers over 12,000 square miles in southern Oregon and northern California. The Klamath River headwaters are in the flat open valleys below Crater Lake, Oregon. These streams gain volume by intercepting groundwater inputs from large porous aquifers that discharge year round. Snowmelt and groundwater inputs keeps these streams clear and cool year round (Isaak 2017).

At the base of the cascades, the relatively low relief, volcanic terrain of the Upper Klamath Basin supports large, shallow natural lakes and wetlands that are naturally high in phosphorus. These lakes and wetlands collect water from the headwater streams as wells as the Sprague, Williamson, and Wood Rivers and other smaller tributaries. Human activities in the upper basin, including wetland draining, agriculture, ranching, logging, and water diversions have altered seasonal stream flows and water temperatures, increased concentrations of nutrients (nitrogen and phosphorus) and suspended sediment in watercourses, and degraded other water quality parameters such as pH and dissolved oxygen concentrations (USDOI, 2012).

The Klamath River exits the low relief terrain at Keno Dam. Here the river gradually changes into a generally steep canyon reach that extends to the California border and continues to the mouth. Water in this reach tends to be more swiftly flowing and cooler from contributions from cool springs and tributaries. The J.C. Boyle Development is located near the start of this reach, approximately 13 miles east of the City of Klamath Falls and 5.6 miles below Keno dam. The upper-most portion of the J.C. Boyle Development is located at RM 228.3 at an elevation of 3,793 feet. The Project diverts up to 2500 cubic feet per second for power development at the J.C. Boyle dam (RM 224.7). The powerhouse discharges to the Klamath River at RM 220.4, elevation 3,330 feet. The bypass reach is 4.3 miles long (PacifiCorp, 2016).

The local climate is one of cool, wet winters and warm, dry summers. Due to generally high elevations, the plateau has cool temperatures and receives a significant amount of snow, which accumulates into moderately deep snowpack (Oregon Watershed Enhancement Manual 2001). Cold air temperatures and precipitation generally occur from November to March and range between 34F and 20F, with an average of 27F. These cold temperatures correspond to periods of higher flows and colder water temperatures. Most precipitation occurs in the winter months of November, December and January (Oregon Watershed Enhancement Manual 2001). The average annual precipitation for the period from 1907 to 1997 at Klamath Falls was 13.4 inches and the average annual precipitation from 1959 to 2009 at Copco 1 was about 20 inches (USDOI, 2012).

Warmer air temperatures and drier conditions occur from April to October, corresponding to periods of lower flows and warmer water temperatures. Summer air temperatures are highest in July, August, and September. July temperatures range between 82F and 47F, and average 63F. The summers are dry with occasional isolated thunderstorms from July to September (Oregon Watershed Enhancement Manual, 2001).

3.7.2 Geology

The geology of the Upper Klamath basin consists of volcanic and sedimentary layers. The bottommost hydrogeological significant unit is the Western Cascades geologic sub province. This unit consists of lava flows, andesitic mudflows, tuffaceous sedimentary rocks, and vent deposits that range in age from 20 to 33 million years old. These rocks have very low permeability and act as a barrier to regional ground-water flow on the western and lower boundaries of the basin. The seven million year old volcanic rocks of the High Cascade sub province overlay the Western Cascades. This unit is relatively thin, measuring only hundreds of feet thick, and consists of volcanic vents, cinder cones, and lava flows with little to no interbedded material. These volcanic rocks are very permeable. Rocks of the Basin and Range sub province were deposited 7-5 million years ago. This unit consists of volcanic rocks interbedded with sedimentary rocks including tuffaceous sandstone, ashy diatomite, mudstone, siltstone, and some conglomerates. These sedimentary deposits are typically poor water producers, and often serve as confining layers for underlying volcanic aquifers. The youngest stratigraphic unit in the upper Klamath Basin consists of sedimentary deposits of the last few million years. These deposits include alluvium along modern flood plains, basin-fill deposits, landslide deposits, and glacial drift and outwash (Gannett, 2010).

The bedrock surrounding and underlying J.C. Boyle Reservoir is principally composed of moderately well bedded to massive, moderately well consolidated sedimentary rocks containing volcanic material. Lava flows overlie these rocks and form many of the ridges above the reservoir. In the downstream portion of the reservoir, downstream from the Highway 66 Bridge, young lava flows line the sides of the reservoir (USDOI, 2012).

Downstream from J.C. Boyle Reservoir, the river canyon begins to open and channel slope decreases. This reach has a relatively low gradient (approximately 0.8 percent) and alternates between pools, bars, runs, and riffles. There is a wide terrace, which supports a riparian corridor of varying width along the channel, beyond which there is a floodplain. There are several side channels in conjunction with lateral bars and islands (USDOI, 2012).

The soils surrounding J.C. Boyle Reservoir, and along the river south to the Oregon-California border generally consist of lacustrine and alluvial clay, silt, fine-grained sand and peat. The primary soil association along both sides of the river is Skookum-rock outcrop-Rubble land complex with 35 to 70 percent slopes (USDOI, 2012).

The watershed above Keno Dam provides little sediment to the Klamath River; because of its large surface area, Upper Klamath Lake traps practically all sediment entering it from its tributaries (USDOI, 2012).

Within J.C. Boyle Reservoir, the substrate is primarily composed of coarse-grained sediment, both as pre-reservoir alluvium and reservoir sediment. The reservoir has an abundance of gravel/sand bars and cobbles, some exposed above the reservoir water surface. The sediment in the upper section of the reservoir is mostly coarse-grained. The reservoir sediment becomes finer grained with distance downstream. In the middle section, the reservoir sediment consists of thin deposits of fine-grained elastic silt with substantial accumulations of organic material. Reservoir sediment was thickest in the lower section of the reservoir, ranging from 14 to 22 feet thick. Sediment in the lower section was uniformly elastic silt with greater than 90 percent fine-grained material. The sediment overlaid coarse-grained pre-reservoir alluvium consisting mostly of silty gravel with sand (USDOI, 2012). The volume of sediment trapped behind J.C. Boyle dam is estimated to be between 990,000 and 600,000 cubic yards (USDOI, July 2012).

3.7.3 Hydrology

Precipitation in the upper Klamath Basin ranges from an annual average of 15 to 25 inches, mostly occurring November through March. Above 5,000 feet, precipitation may fall as rain or snow during the late fall, winter, and spring. Peak stream flows in the upper basin historically occurred during snowmelt runoff in late spring and early summer (USDOI 2013). However, seasonal stream flow fluctuations in upper basin streams were relatively small due to large, porous aquifers that store precipitation and steadily release throughout the year. From 1905-1913, before Keno and Link River Dams were built, flows at Keno, Oregon were typically highest March through June, between 2500 and 5000 cubic feet per second, and lowest in August through October, between 800 and 1300 cubic feet per second (see Figure 2).

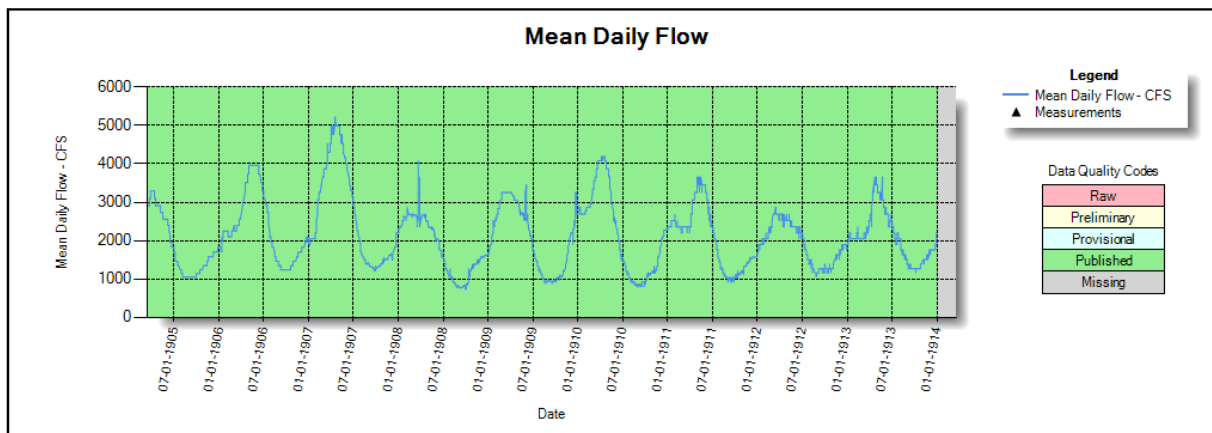


Figure 2: USGS Stream Gage below Keno

Median streamflow at Keno, J.C. Boyle powerhouse and Copco No.1 for the years 1960 to 2009 are shown in Figure 3 (USDOI 2012). The gradient increases sharply just below J.C. Boyle Dam exposing water-bearing zones on the bedrock. Groundwater springs in the 4.3 mile bypass reach increase flow by about 220 to 250 cfs. Because the minimum release below the dam is 100 cfs water at the lower end of the bypass reach is dominated by groundwater inputs.

Figure 4 (USDOI 2012) shows the average daily flow statistics below J.C. Boyle Power Plant. The median monthly flows are greatest in March, during spring runoff.

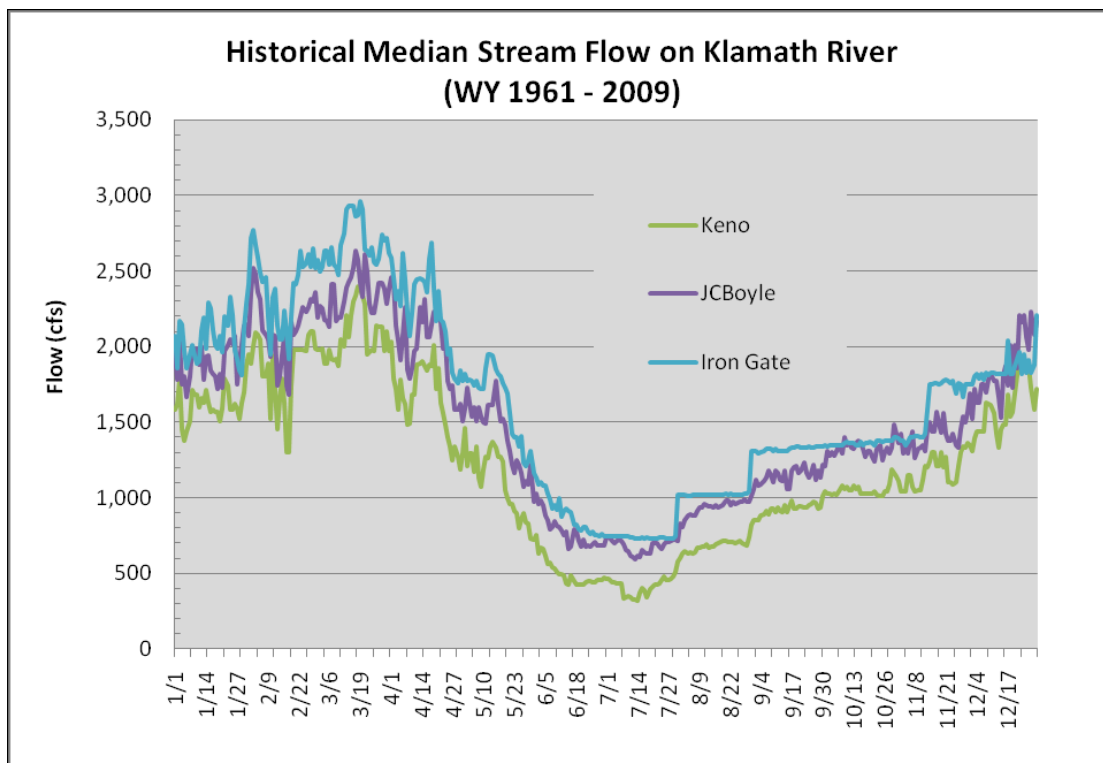


Figure 3: Median Flows at Keno, J.C. Boyle, and Iron Gate 1960-2009

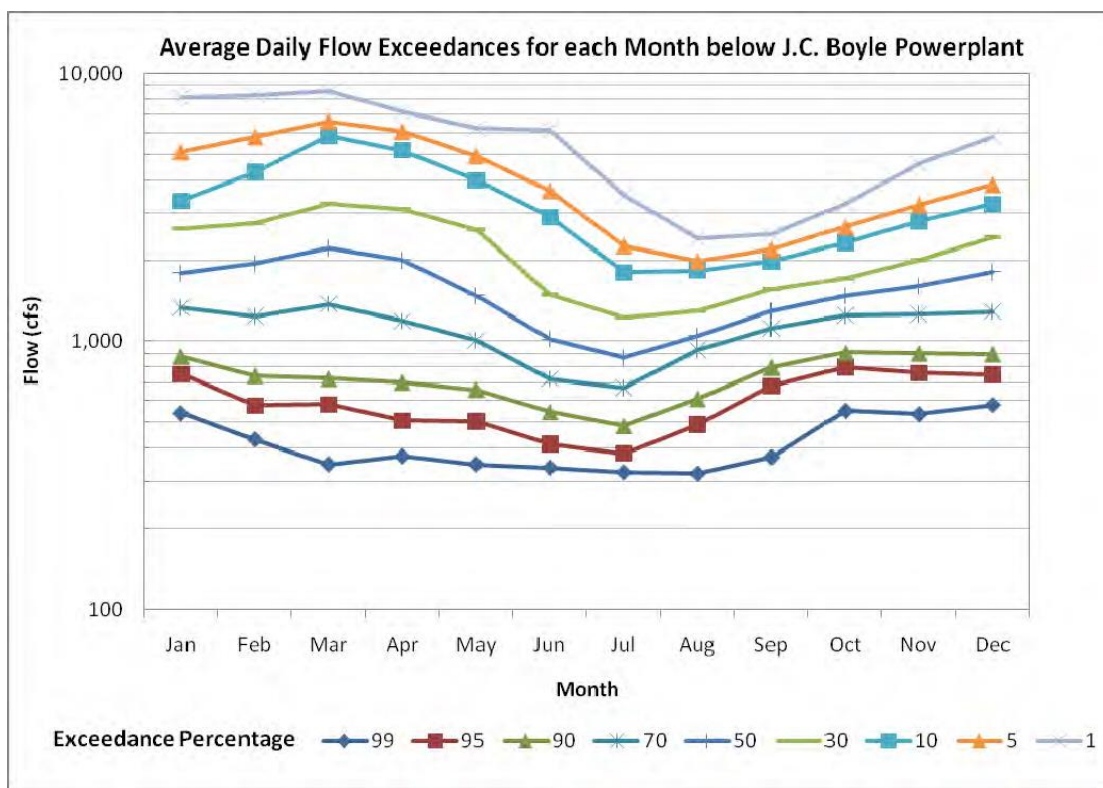


Figure 4: Flow at J.C. Boyle Power Plant (1960-2009)

4. Proposed Action

The KRRC proposes to remove the hydroelectric developments associated with the Lower Klamath Project (FERC No.14803) as described in the Detailed Plan (USDOI July 2012), the September 23, 2016 application to Oregon DEQ for water quality certification, and the Technical Support Document (KRRC 2017) (collectively, the “Application”). The Lower Klamath Project consists of the J.C. Boyle hydroelectric development in Oregon and the Copco No.1, Copco No.2, and Iron Gate hydroelectric developments in California. This section 401 water quality certification specifically addresses the proposed actions located in Oregon. Removal of the Copco No. 1, Copco No. 2, and Iron Gate developments will be addressed under a separate certification evaluation administered by the California State Water Resources Control Board. The dam is shown in Figure 5 (KRRC 2017).

KRRC proposes to remove all physical project elements including J.C. Boyle Dam and reservoir, power canal, powerhouse, transmission lines, recreational facilities and all appurtenant facilities associated with Oregon developments of the Lower Klamath Project. Portions of the power canal slab and underground infrastructure and/or building slabs may be left in place under a partial removal option. KRRC also proposes to mitigate for impacts to aquatic and terrestrial resources, restore and manage reservoir sediments, manage waste materials, monitor and mitigate for impacts to affected resources, and other restoration actions as described in the Application material and summarized in the following sections.



Figure 5: J.C. Boyle Dam

4.1 Reservoir Drawdown and Diversion

KRRC proposes to draw down J.C. Boyle reservoir according to the Reservoir Drawdown and Diversion Plan presented in the Technical Support Document. The plan presents a time schedule for conducting

drawdown based on historical inflow and limits placed on maximum reservoir discharge to maintain stable embankment conditions. Outflow through the two diversion culverts is about 5,700 cfs. Simulated inflow based on hydraulic records from 1961 to 2009 indicate maximum inflow during January and February exceeds 5,000 cfs for just 15 percent of the historic record. Under most modeled scenarios the reservoir will be completely drawn down by mid-February but may partially refill during storm events. The majority of the accumulated sediment is expected to mobilize during the initial drawdown, and subsequent reservoir filling and drawdown is expected to cause only moderate increases in suspended sediment load.

4.1.1 Reservoir Drawdown Procedures

Drawdown of J.C. Boyle Reservoir will begin on or about January 1 of the drawdown year. Beginning at normal operating pool elevation of 3796.7 feet the reservoir will be drawn down by making controlled releases through the spillway gates (elev. 3785.2) and the power intake (elev. 3771.7). Inflow in excess of the 2,800 cfs capacity of the power canal will be passed over the spillway crest. Releases through the power canal will be directed through the powerhouse rather than the emergency spillway. With the power canal and spillway gates open, the reservoir elevation will be held at the lowest elevation for about a week to allow pore water pressure in the dam embankment and rim to stabilize. Because the reservoir has minimal storage capacity, the elevation may fluctuate during this period depending on inflow.

With the reservoir elevation at the lowest level, drawdown would proceed by removing the stoplogs from the two 9.5- by 10 foot box culverts below the spillway crest. Reservoir elevation would decrease rapidly to the culvert invert elevation (3755.2). With the reservoir at this elevation the spillway gates, bridge deck, spillway piers and log boom would be removed. Excavation of the embankment sections would begin July 1 and would remove the remaining impounded section on the river by September 30. Removal of the remaining impoundment sections beginning in July of that year would result in a brief secondary, lesser release. KRRC expects a free-flowing condition through the area of the former reservoir will be restored by September of the drawdown year.

4.1.2 Reservoir Drawdown Monitoring

The shell of the dam consists of porous material that releases water more slowly than the projected reservoir drawdown rate. During drawdown, reservoir elevations will be maintained at set elevations to equalize pore pressure in the embankment materials and reduce potential instability during reservoir drawdown.

KRRC will monitor the J.C. Boyle Dam during drawdown for evidence of impending embankment instability. Monitoring would include daily visual observations of the upstream slope for signs of instability such as cracking or slumping. Survey monuments and at least two inclinometers will also be installed in the year prior to reservoir drawdown and would be monitored on a daily basis for evidence of deep failures within the upstream shell. At least two piezometers would also be installed in the upstream shell and two piezometers in the embankments to monitor pore pressure during reservoir drawdown.

4.2 Facilities Removal

KRRC proposes to perform facilities removal according to the full-removal alternative described in the Application material. The principal actions to accomplish the full removal of the Lower Klamath Project are described below.

4.2.1 Removal Limits

The geographical extent of the proposed action including the removal limits, locations of cut and fill areas, temporary access and staging areas, and project elements scheduled for demolition and removal are

identified on Sheets 1 through 9 of Figure 5.2-1 of the 2017 Technical Support Document. The removal limits include the following elements identified in Table 2.

The Application states KRRC may consider retaining certain elements under a partial removal option as identified in Table 2. KRRC indicated that elements retained under a partial removal option would be not conflict with the objective of achieving a free-flowing river condition and full volitional fish passage. KRRC would undertake investigation and remediation of paints, oils, or other hazardous materials associated with any elements retained under a partial removal option scenario.

Table 2: Removal Limits

Feature	Full Removal	Partial Removal
Embankment Dam, Cutoff Wall	Remove	Remove
Spillway Gates and Crest Structure	Remove	Remove
Fish Ladder	Remove	Remove
Steel Pipeline and Supports	Remove	Retain
Canal Intake (Screen) Structure	Remove	Retain
Left Concrete Gravity Section	Remove	Retain
Power Canal (Flume)	Remove	Remove walls
Shotcrete Slope Protection	Remove	Retain
Forebay Spillway Control Structure	Remove	Remove
Tunnel Inlet Portal Structure	Remove	Remove
Surge Tank	Remove	Remove
Penstocks, Supports, Anchors	Remove	Remove
Tunnel Portals	Concrete Plug	Concrete Plug
Powerhouse Gantry Crane	Remove	Remove
Powerhouse Substructure/Slab	Remove	Retain
Powerhouse Hazardous Materials	Remove	Remove
Tailrace Flume Walls	Remove	Remove
Tailrace Channel Area	Backfill	Partial Backfill
Canal Spillway Scour Area	Backfill	Partial Backfill
Three 69-kV Transmission Lines, 3.56 mi total	Remove	Remove
Switchyard (fencing, poles, transformers)	Remove	Remove
Buildings – Red Barn, maintenance shop, fire protection building, communications building, 2 residences, storage shed, reservoir level gages house	Remove All	Remove Some

4.2.2 Facilities Removal Methods

KRRC expects the demolition methods, practices, equipment requirements, and estimated workforce to be consistent with other similar large-scale civil construction projects. Project-specific details including professional engineering judgment, planning, and equipment selection will be at the discretion of the general contractor. Alternative methods to meet project requirements may be refined or adjusted in the field by the selected contractor based on field conditions and unanticipated circumstances. The following general construction procedures are anticipated to complete the objectives of facilities removal.

Cranes, hoists, and other heavy lifting equipment will be required to remove the spillway gates, hoists, and other mechanical equipment. Cutting equipment, including acetylene torches, will be required to prepare larger pieces for loading on to flatbed trucks and transportation from the site. Deconstruction will require extensive field equipment including jackhammers, hydraulic excavators, shears, air compressors, hydraulic track drills, and sawing equipment. Transportation will require large capacity loaders and off-road and highway rated trucks.

4.2.3 Staging Areas and Waste Disposal Sites

4.2.3.1 Waste Disposal Locations

Estimated quantities of materials generated during removal of J.C. Boyle Dam and Powerhouse, numbers of truck trips, and approximate haul distances for waste disposal are shown in Table 3 (KRRC 2017).

Table 3: Estimated Volume of Waste Material from Removal of J.C. Boyle Facilities

Waste Material	In-Situ Quantity	Bulk Quantity	Disposal Site	Peak Daily Trips	Total Trips
Earth	102,000 CY	122,000 CY	Right abutment disposal area	5 units/160 trips (unpaved road)	5,600 trips (1 mile RT)
	7,000 CY	8,000 CY	Powerhouse tailrace	5 units/160 trips (unpaved road)	360 trip (8 miles RT)
Concrete at: Dam Power canal Powerhouse	1,900 CY 30,600 CY 4,600 CY	2,600 CY 39,800 CY 6,000 CY	Forebay spillway scour hole	2 units/50 trips (unpaved road)	120 trips (4 miles RT) 1,810 trips (2 miles RT) 270 trips (4 miles RT)
Rebar at: Dam Power canal Powerhouse	200 tons 3,800 tons 100 tons	---	Landfill near Klamath Falls	2 units/10 trips (OR66)	20 trips (44 miles RT) 380 trips (48 miles RT) 10 trips (52 miles RT)
Mech. and Elec at: Dam Power canal Powerhouse	700 tons 300 tons 1,500 tons	---	Landfill near Klamath Falls	2 units/10 trips (OR66)	90 trips (44 miles RT) 40 trips (48 miles RT) 200 trips (52 miles RT)
Building Waste	10 buildings 12,000 ft ²	2,700 CY	Landfill near Klamath Falls	2 units/10 trips (OR66)	270 trips (44 miles RT)
Power lines	3.5 miles of 69-kV	---	Landfill near Klamath Falls		

KRRC proposes to utilize two project locations for permanent placement of solid waste material generated during deconstruction activities. The first is the original borrow pit used to source rockfill material used in the construction of J.C. Boyle dam. Earth materials generated during dam deconstruction will be transported to this 6-acre site located beneath existing power lines near the right dam abutment for permanent placement. Material will be graded into a hill of about 35 feet and contoured to blend into the surrounding topography. Preparation of the disposal site would include clearing of existing vegetation and stripping and stockpiling of what little topsoil is present.

KRRC proposes to cover the disposal site with topsoil and hydroseed the surface. Erosion monitoring will be completed on an annual basis for 5 years following placement to assess whether significant erosion and slope deterioration has occurred.

KRRC will place concrete rubble from the dam, flume, forebay, and powerhouse in the eroded scour hole below the forebay spillway structure. Previously eroded rock and soil near the toe of the slope will be used to cover the concrete material. Up to 12 inches of topsoil will be placed on top of the restored area and seeded for restoration.

4.2.3.2 Staging Areas

KRRC has identified four temporary staging areas for equipment and material placement during facilities removal. These include: one 5.0 acre area and one 7.1 acre area near the right abutment of J.C. Boyle dam, one 1.1 acre area located near the J.C. Boyle forebay, and one 1.8 acre area at the powerhouse. The staging areas would be prepared by clearing vegetation and minor grading. The staging areas would be restored post construction by minor grading and hydroseeding.

4.2.4 Recreational Facility Removal

Developed recreation sites at J.C. Boyle Reservoir include campgrounds, day use areas, and boat launches. The key elements of these recreation sites are summarized below, including a description of the recreation facilities available at these developed sites, and proposed removal requirements. Developed public recreation sites discussed in this section include the following:

4.2.4.1 Pioneer Park (East and West Units)

Managed by PacifiCorp as part of the Project, Pioneer Park consists of two separate day use areas on the western and eastern shoreline of J.C. Boyle Reservoir. Both sites have access from SR 66 and are located on each side (west and east) of the SR 66 Bridge over a narrow point of the reservoir. Estimated annual use in 2001/2002 was 16,700 recreation days for both sites.

Site restoration following dam removal would require removal of all features and the access roads and parking areas to be regraded, seeded, and planted to prevent impacts to water quality due to run-off, erosion and sediment input.

4.2.4.2 Topsy Campground

Managed by BLM, Topsy Campground is located on the southeastern shoreline of J.C. Boyle Reservoir and is accessible via the Topsy Grade Road off SR 66. The site consists of a campground, small day use area, and a boat launch. All roads within the campground are asphalt. Estimated annual use in 2001/2002 was 5,600 recreation days for this site. BLM collects user fees at the site.

Site restoration following dam removal would require removal of the boat launch, floating dock, and fishing pier, including approximately 68 cubic yards of concrete, and the affected area to be regraded, seeded, and planted. The remainder of the campground would be retained for public use.

4.3 Reservoir Management

4.3.1 Reservoir Restoration

The Application contains a Reservoir Area Management Plan to stabilize and restore the reservoir embankment following drawdown. The 2017 Reservoir Area Management Plan revises and updates a 2011 plan developed by the USBR with assistance from the National Marine Fisheries Services and agencies from the Department of the Interior. The 2017 Reservoir Area Management Plan proposed by KRRC includes elements to manage and monitor sediment and restore aquatic habitat in river reaches following reservoir drawdown. Figure six (KRRC 2017) identifies the locations of proposed restoration actions in J.C. Boyle Reservoir.

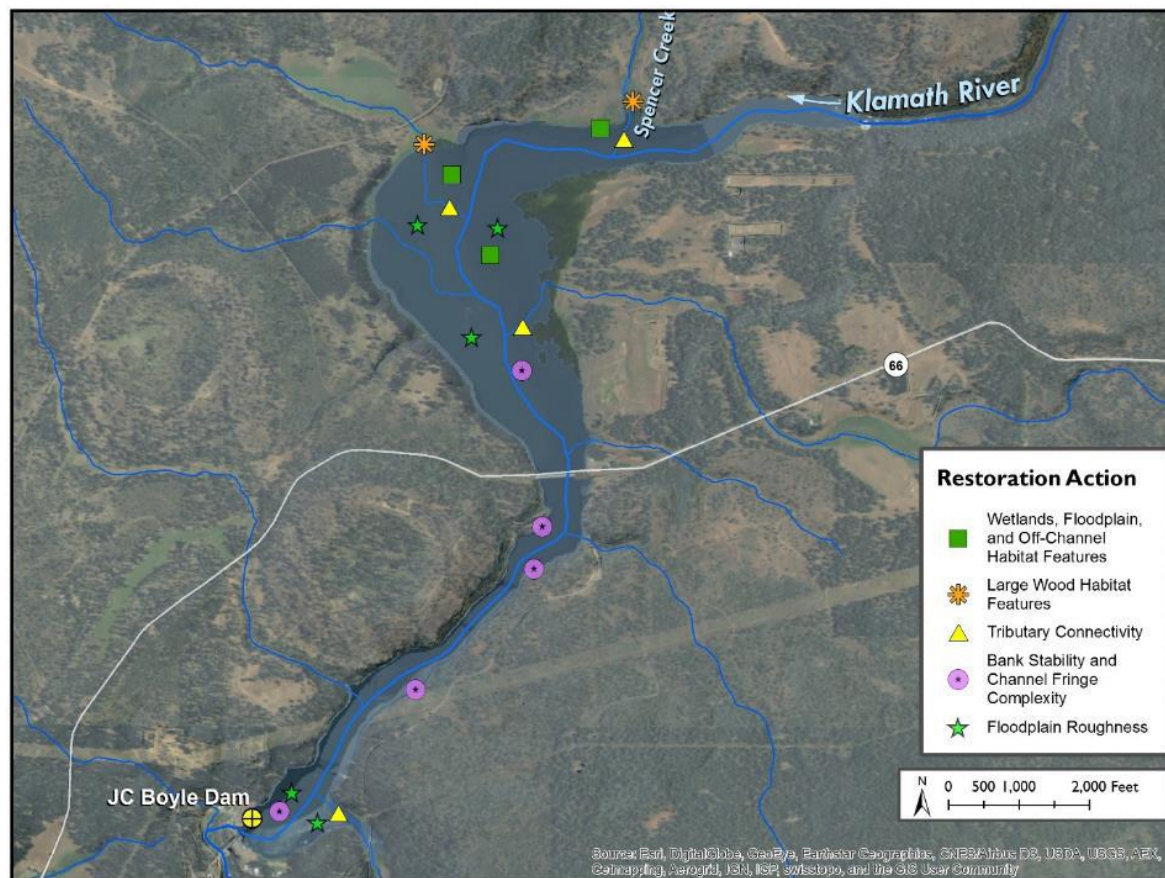


Figure 6: J.C. Boyle Proposed Restoration Area

4.3.1.1 Measures to Manage Remaining Sediment

The Reservoir Area Management Plan proposes revegetation and active habitat restoration of reservoir areas following drawdown. The following sequence describes the activities and restoration features that will be implemented in the reservoir areas to manage remaining sediments not eroded during drawdown:

- 1) Pre-Removal (1-2 years prior to drawdown): conduct pre-treatment of invasive exotic vegetation species and collect seeds ;
- 2) Reservoir drawdown (January to March, year of drawdown): perform reservoir drawdown with natural erosion and evacuation of accumulated reservoir sediment deposits, stabilize sediments and exposed areas with hydroseeding;

- 3) Post-drawdown first summer/fall (dry season immediately after drawdown): conduct additional seeding application where needed for exposed areas and remaining reservoir deposits with grasses and ground cover, manual removal/treatment of invasive exotic vegetation, and installation of riparian trees and shrubs;
- 4) Post-removal (year after dam removal is complete): maintain vegetation, continue to remove and treat invasive exotic vegetation, install habitat features;
- 5) Establishment period (years 2 through 5 post-dam removal): continued monitoring and maintenance of vegetation, removal of invasive exotic vegetation, fish passage monitoring, and enhancement of habitat features as needed;
- 6) Long term (years 5 through 10 post-dam removal): continued monitoring and adaptive management, removal of invasive exotic vegetation, and fish passage monitoring.

4.3.1.2 Measures to Monitor Remaining Sediment

KRRC proposes to monitor sediment stability following drawdown to ensure the objectives of the 2017 Reservoir Area Management Plan are met. The following actions are proposed to establish initial conditions and to inform adaptive management decisions related to reservoir restoration:

- 1) Permanent ground photo points will be established throughout the reservoir areas that enable sufficient vantage points of critical areas within the reservoirs. Photos will be taken to provide initial conditions for monitoring data to develop informed maintenance and corrective actions;
- 2) High resolution vertical aerial photos will be completed for the reservoir areas;
- 3) LiDAR will be collected for the reservoir areas after sediment evacuation and initial ground cover stabilization and used to create initial conditions surface models.

4.3.1.3 Measures to Restore Klamath River within J.C. Boyle Reservoir

The Klamath River is expected to re-occupy the historical channel alignment within the footprint of J.C. Boyle Reservoir following drawdown. To meet the objectives of the Reservoir Area Management Plan KRRC proposes to implement the following restoration techniques as appropriate:

- 1) Tributary Connectivity: KRRC will monitor the exposed confluence areas of tributaries to the Klamath River for evidence of fish barriers caused by sediment deposition. KRRC will undertake efforts to manually correct for barriers caused by sedimentation or head-cutting. Large woody debris structures may be placed at key locations to enhance habitat complexity and promote sediment stabilization.
- 2) Wetlands, Floodplain and Off-Channel Habitat Features: KRRC may incorporate floodplain features into newly exposed floodplains to promote habitat complexity and restore hydrologic function of the reservoir area. Restored habitat types may include wetland restoration in appropriate low-lying depressional areas, floodplain swales, and side-channel restoration.

4.3.2 Upland Restoration

Upland areas disturbed during construction activities will be revegetated according to the procedures for upland planting zone areas described in the Reservoir Management Plan. These areas include disposal

sites, temporary access roads and staging areas, infrastructure demolition sites, former recreation areas, and the J.C. Boyle power canal. In general, compacted areas will be prepared for replanting by ripping or disking the ground to improve permeability and revegetation potential. Existing native vegetation will be preserved for placement after completion of ground-disturbing activities. Filled areas will be capped with available soil and reseeded consistent with surrounding vegetation mix.

4.4 Other Project Elements

4.4.1 Aquatic Resource Measures

4.4.1.1 Aquatic Resource Measure AR-6: Sucker

The short-term effects of the dam removal are anticipated to result in mostly sublethal, and in some cases lethal impacts to Lost River and shortnose suckers within Hydroelectric Reach reservoirs. Lost River suckers and shortnose suckers are lake-type fish and are not anticipated to persist in the Klamath River following conversion of the reservoirs to freeflowing riverine conditions.

KRRC proposes to conduct surveys to document genetics and abundance of Lost River and shortnose suckers in LKP reservoirs. To mitigate the effects of drawdown and dam removal, adult Lost River and shortnose suckers in reservoirs downstream from Keno Dam will be captured and relocated to isolated water bodies in the Klamath Basin. The proposed relocation of rescued suckers to isolated waterbodies is to ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake. KRRC expects salvaging and translocating 100 Lost River and 100 shortnose suckers from J.C. Boyle reservoir. The salvage effort will likely translocate less than 10 percent of the sucker populations in the respective reservoirs.

4.4.1.2 Western Pond Turtle Study

The Western pond turtle (*Actinemys marmorata* or *Emys marmorata*) is a freshwater turtle species native to western North America, including the Klamath Basin. Western pond turtles are known to inhabit the rivers, streams, and wetlands surrounding the project area including J.C. Boyle Reservoir. The Oregon Sensitive Species List includes the western pond turtle and it is a species of special concern in California. It is also state-listed as endangered in Washington State, and is currently under review for federal listing under the Endangered Species Act.

Western pond turtles overwinter in open water habitat. Because reservoir drawdown will occur during this period, turtles overwintering in shallow portions of J.C. Boyle may be impacted by the proposed action in the following ways:

- Increased risk of predation as adults and hatchlings move from exposed overwintering or nest sites to new locations of aquatic habitat;
- Potential mortality from exposure to freezing conditions following drawdown;
- Burial from sediment slumping or bank failure;
- Turtles overwintering in shallow, upstream portions of the reservoir may be vulnerable to washing downstream during sediment export.

KRRC proposes to conduct surveys of existing turtle nesting habitat to determine the need for mitigation measures to reduce potential impacts during and following reservoir drawdown. A preliminary scope for the investigation has been developed with input from ODFW and include the following goals:

- 1) Determine the abundance of western pond turtles in the J.C. Boyle Reservoir area; and

2) Identify where western pond turtles are overwintering in the J.C. Boyle Reservoir area.

The investigation would include mark/recapture surveys and a tracking study using temperature monitors with or without radio telemetry.

4.4.2 Other Resource Management Plans

The Technical Support Document (KRRC 2017) presents the following plans that provide direction on the management of resources affected by the removal of the Lower Klamath Project.

4.4.2.1 Water Quality Management Plan

KRRC proposes to monitor water quality before, during, and after the drawdown of J.C. Boyle Reservoir and the removal of project facilities. The Water Quality Management Plan is presented in Application. Key elements of the plan pertaining to the monitoring of water quality in the Oregon hydroelectric reach are summarized below.

Monitoring Locations

KRRC proposes to collect grab and continuous water quality data at the following two locations in Oregon:

- Klamath River below Keno Dam (RM 233.4)
- Klamath River below J.C. Boyle Dam (RM 224.6)

Monitoring Parameters

The proposed monitoring parameters, frequency, and sample type proposed by KRRC (KRRC, 2017. p. 7-38) are presented in Table 4 below.

Table 4: Water Quality Management Plan Proposed by KRRC

Constituent	Frequency	Type of Sample
Temperature	Hourly, 12 months per year	Continuous Sonde
Dissolved Oxygen	Hourly, 12 months per year	Continuous Sonde
pH	Hourly, 12 months per year	Continuous Sonde
Conductivity	Hourly, 12 months per year	Continuous Sonde
Turbidity	Hourly, 12 months per year	Continuous Sonde
Chemical Oxygen Demand	Monthly, daily during drawdown	Grab
Total Nitrogen	Monthly	Grab
Total Phosphorous	Monthly	Grab
Microcystis Cell Count	Monthly	Grab

Duration

The Water Quality Management Plan proposes to conduct water quality monitoring 12 months of the year beginning at least one year prior to dam removal and up to three years following dam removal.

Section 7 of this report presents DEQ's evaluation of the project's effects on water quality. Based on the findings of this evaluation DEQ will include certification conditions for water quality monitoring deemed necessary to support a finding that DEQ is reasonably assured the project will not violate water quality

standards. The conditions may include some or all of the monitoring plan elements proposed by KRRC or other monitoring elements deemed necessary to support a certification decision.

4.4.2.3 Hazardous Material Management Plan

KRRC has prepared a Hazardous Materials Management Plan to provide guidance for the appropriate management and disposal of hazardous materials encountered during facilities removal. The Plan is included in the Application. KRRC expects to encounter a variety of hazardous materials during removal of the powerhouse, infrastructure buildings, and other facilities scheduled for removal. Prior to drawdown, KRRC proposes to complete a Phase I Environmental Site Assessment and, if recommended, a Phase II Environmental Site Assessment to characterize the nature, extent, and risk associated with environmental contaminants at the site.

5. Klamath River Water Quality

5.1 Beneficial Uses in the Klamath River

The following are the designated beneficial uses of the Klamath River in the J.C. Boyle Development reach, per OAR 340-041-0180 Table 180A:

- Public domestic water supply (with adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards)
- Private domestic water supply (with adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards)
- Industrial water supply
- Irrigation
- Livestock watering
- Fish and aquatic life, including Redband and Lahontan cutthroat trout
- Wildlife and hunting
- Fishing
- Boating
- Water contact recreation
- Aesthetic quality
- Hydro power
- Commercial navigation and transportation

Figure 7 further defines the fish use in the J.C. Boyle hydroelectric project vicinity as Redband or Lahontan Cutthroat Trout.

Figure 180A: Fish Use Designations
KLAMATH BASIN, OREGON

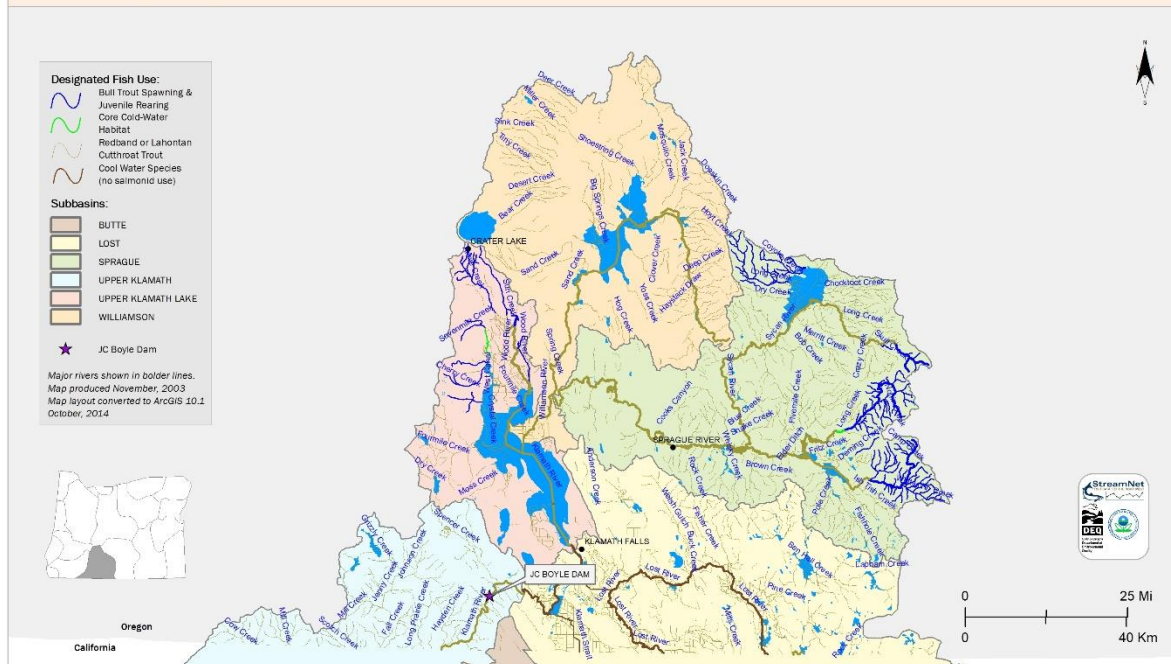


Figure 7: Fish Use in the Klamath Basin, OAR 340, Division 041 - Figure 180A

5.2 Native and Extirpated Fish Species

Fish species currently or historically present in the Oregon hydroelectric reach are identified in Table 5.

Table 5: Current and Historical Fish Presence in Oregon Hydroelectric Reach

<u>Upper end of J.C. Boyle Reservoir to J.C. Boyle dam “J.C. Boyle Reservoir” (RM 228.3 - RM 224.7)</u>			
<u>Native Species currently present:</u>		<u>Federal ESA</u>	<u>Oregon ESA</u>
Redband Trout**	<i>(Oncorhynchus mykiss)</i>		
Slender Sculpin	<i>(Cottus tenuis)</i>		
Klamath Lake Sculpin	<i>(Cottus princeps)</i>		
Lost River Sucker	<i>(Deltistes luxatus)</i>	Endangered	Endangered
Shortnose Sucker	<i>(Chasmistes brevirostris)</i>	Endangered	Endangered
Klamath Largemouth Sucker	<i>(Catostomus snyderi)</i>		
Blue Chub	<i>(Gila coreulea)</i>		
Tui Chub	<i>(Siphateles bicolor bicolor)</i>		
Klamath Speckled Dace	<i>(Rhinichthys osculus klamathensis)</i>		
Marbled Sculpin	<i>(Cottus klamathensis)</i>		

Klamath River Lamprey	(<i>Entosphenus similis</i>)		
Klamath Small-scale Sucker	(<i>Catostomus rimiculus</i>)		
<u>Historic Native Species – Not currently present</u>			
Spring-run/fall-run Chinook Salmon	(<i>Oncorhynchus tshawytscha</i>)		
Steelhead trout	(<i>Oncorhynchus mykiss</i>)		
Coho Salmon**	(<i>Oncorhynchus kisutch</i>)	*Threatened	
Pacific Lamprey**	(<i>Entosphenus tridentata</i>)		
* Coho salmon in the Klamath River Basin are a component of the Southern Oregon and Northern California Coast (SONCC) coho salmon ESU, which was listed as threatened in 1997 under the ESA.			
**Coho Salmon, Redband Trout and Pacific Lamprey within the Oregon portion of the Klamath Basin are also listed as Sensitive Species on the Oregon State Sensitive Species list.			
<u>Non-native species currently present</u>			
Pumpkin seed, yellow perch Sacramento perch, largemouth bass, White Sturgeon, black crappie, white crappie, goldfish, brown bullhead, fathead minnow			
<u>Klamath River: J.C. Boyle Dam downstream to California Oregon border: River mile (RM 224.7 – approx. RM 208.5) *J.C. Boyle powerhouse is located at RM 220.4</u>			
<u>Native Species currently present</u>		<u>Federal ESA</u>	<u>Oregon ESA</u>
Redband Trout	(<i>Oncorhynchus mykiss</i>)		
Klamath Smallscale Sucker	(<i>Catostomus rimiculus</i>)		
Klamath River Lamprey	(<i>Entosphenus similis</i>)		
Marbled Sculpin	(<i>Cottus klamathensis</i>)		
Klamath Speckled Dace	(<i>Rhinichthys osculus klamathensis</i>)		
<u>Historic Native Species – Not currently present</u>		<u>Federal ESA</u>	<u>Oregon ESA</u>
Spring-run/fall-run Chinook Salmon	(<i>Oncorhynchus tshawytscha</i>)		
Steelhead trout	(<i>Oncorhynchus mykiss</i>)		
Coho Salmon	(<i>Oncorhynchus kisutch</i>)		
Pacific Lamprey	(<i>Entosphenus tridentata</i>)		
<u>Non-native species currently present:</u>			
Fathead Minnow			

(Written communication, Ted Wise, ODFW, February 28, 2018)

5.3 Threatened and Endangered Aquatic Species

Table 6 presents species in Klamath County listed by USFWS and NMFS as threatened or endangered. Habitat for each of these species includes segments of the Klamath River.

Table 6: Federally Listed Threatened and Endangered Species in Klamath County

Group	Common Name	Scientific Name	Status
Amphibians	Oregon spotted frog	<i>Rana pretiosa</i>	Threatened
Fishes	Lost River sucker	<i>Deltistes luxatus</i>	Endangered
Fishes	Shortnose Sucker	<i>Chasmistes brevirostris</i>	Endangered
Fishes	Bull Trout	<i>Salvelinus confluentus</i>	Threatened
Fishes	Coho salmon*	<i>Oncorhynchus kisutch</i>	Threatened
Fishes	Oregon chub	<i>Oregonichthys crameri</i>	Recovery

* Coho salmon in the Klamath River Basin are a component of the Southern Oregon and Northern California Coast (SONCC) coho salmon ESU, which was listed as threatened in 1997 under the ESA.

In addition to federal threatened and endangered species listings, Oregon has its own method of listing species. The Oregon Conservation Strategy (ODFW 2016) identifies 294 Strategy Species, which are Oregon's "Species of Greatest Conservation Need". Strategy Species are defined as having small or declining populations, are at-risk, and/or are of management concern. Oregon's Strategy Species include amphibians, birds, mammals, reptiles, fish, invertebrates, and plants and algae. The strategy documents information on the special needs, limiting factors, data gaps, conservation actions, and available resources for each of Oregon's Strategy Species. Table 7 presents Oregon Conservation Strategy species with habitat in the Klamath River in Oregon below Keno Dam.

Table 7: Oregon Conservation Strategy Listed Species

Group	Common Name	Scientific Name	Status
Amphibians	Western toad	<i>Anaxyrus boreas</i>	State sensitive
Fishes	Coho salmon	<i>Oncorhynchus kisutch</i>	State sensitive
Fishes	Fall Chinook	<i>Oncorhynchus tshawytscha</i>	State sensitive
Fishes	Pacific lamprey	<i>Entosphenus tridentatus</i>	State sensitive
Fishes	Redband trout	<i>Oncorhynchus mykiss gairdneri</i>	State sensitive
Fishes	Spring Chinook	<i>Oncorhynchus tshawytscha</i>	State sensitive
Fishes	Summer steelhead	<i>Oncorhynchus mykiss</i>	State sensitive
Reptile	Western pond turtle	<i>Actinemys marmorata</i>	State sensitive

5.4 Water Quality Impairment in the Klamath River

The federal Clean Water Act's section 303(d) and Oregon Administrative Rule (OAR 340-041-0046), require DEQ to maintain a list of water quality limited waters, which is also referred to as the 303(d) list.. Klamath River reaches included on the State's 2012 303(d) list are shown in Table 8.

Table 8: Water Quality Impairments in Klamath River from JC Boyle to Stateline²

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status	Assessment Year
Klamath River	207 to 231.1	Dissolved Oxygen	January 1 - May 15	Spawning: Not less than 11.0 mg/L or 95% of saturation	Resident trout spawning	Cat 5: Water quality limited, 303(d) list, TMDL needed	2004
Klamath River	207 to 231.1	Dissolved Oxygen	Year Round (Non-spawning)	Cold water: Not less than 8.0 mg/l or 90% of saturation	Cold-water aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed	2004
Klamath River	207 to 231.1	Temperature	Year Round (Non-spawning)	Redband or Lahontan cutthroat trout: 20.0 degrees Celsius 7-day-average maximum	Redband or Lahontan cutthroat trout	Cat 5: Water quality limited, 303(d) list, TMDL needed	2004
Klamath River	207 to 285.3	Arsenic	Year Round	Table 40 Human Health Criteria for Toxic Pollutants	Human health; Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed	2012

5.5 Current Water Quality

Water flowing into the project area originates in the Upper Klamath Basin, a 3,700 square mile watershed characterized by volcanic soils rich in phosphorus, shallow lakes and wetland areas. The dominant factor driving water quality impairment in the upper basin is the high rate of primary production responsible for massive summertime algal blooms. Algal productivity in Upper Klamath Lake is supported by high rates of nutrient loading, principally nitrogen and phosphorus, and is further influenced by abundant sunlight and shallow depth. These conditions historically supported high rates of primary production as confirmed through analysis of algal deposition in sediment core samples.

More recently, human development in the basin, including water diversion, drainage and agricultural practices has greatly increased sediment and nutrient input. These activities have increased rates of phosphorus loading and created a competitive advantage for the proliferation of nitrogen-fixing strains of blue-green algae including *Aphanizomemon flos-aquae*. Certain strains of cyanobacteria, including *A.*

² List can be downloaded at: <https://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx>

flos-aquae, release cyanotoxins when dead cells lyse. The release of cyanotoxins can cause nerve and liver damage in mammals.

The algal growth cycle has profound effects on water quality. Respiration and photosynthesis cause wide diurnal swings in dissolved oxygen and high pH that exceed safe levels for many aquatic species. During mid-summer, lake pH can reach levels that increase solubility of nutrients bound to lake-bottom sediments. This nutrient recycling mechanism represents an additional source of nutrient loading and further accelerates the rate of primary production. Ammonia, a by-product of algal metabolism, is produced during intense summer algal blooms in concentrations that are harmful to aquatic life.

The algal growth cycle decreases in late summer as the loss of seasonal sunlight reduces support for continued growth. As cells die, cellular decomposition depletes dissolved oxygen causing near-anoxic late summer conditions particularly in the Keno Reach between Link River and Keno Dams. Much of the dead algal biomass remains suspended in the water column and is eventually exported downstream; however, some material settles to the lake bottom whose nutrients may be recycled into the water column in subsequent years. Water quality generally improves in the higher gradient reach below Keno Dam above the J.C. Boyle development. Turbulence in this reach increases dissolved oxygen and promotes the conversion of ammonia to nitrate and nitrite.

Nutrient levels in the Klamath River generally decrease with distance downstream from Upper Klamath Lake due to particulate trapping in reservoirs, dilution, and uptake along the river channel. Cold springs contribute 200 – 250 cubic feet per second of groundwater to the Klamath River just downstream of the J.C. Boyle powerhouse (approximate river mile 221). On an annual basis, nutrients typically decrease downstream of J.C. Boyle due to the dilution by the springs downstream from J.C. Boyle Reservoir.

Klamath River data below J.C. Boyle reservoir (approximate river mile 224.6) indicate compliance with the pH criteria and the chlorophyll *a* guidance value. Data indicate non-attainment of the dissolved oxygen criteria from about February 15 and October 15.

Effect of Hydropower Operations on Water Quality

Hydropower operations affect water quality in the hydroelectric reach (reservoir, bypass reach and peaking reach) as discussed further below.

Reservoir Impoundment

J.C. Boyle dam slows and impounds a segment of the Klamath River causing retention of sediment, organic matter, and other material. Nutrient-rich material retained behind the dam promotes algal growth and affects parameters including dissolved oxygen and pH. The presence of the dam also interrupts the thermal regime that would otherwise exist without the dam. J.C. Boyle reservoir has a relatively short hydraulic residence time and does not thermally stratify in the classic sense. However, cold, denser water entering the reservoir sinks to deeper levels resulting in observable thermal stratification. Furthermore, incoming water tends to be higher in dissolved oxygen. Because this water sinks rather than mixes, middle and upper portions of the reservoir frequently experience periods of low dissolved oxygen particularly in late summer.

Bypass Reach

J.B. Boyle dam diverts up to 3,000 cfs of water to the power canal. PacifiCorp currently operates the project under annual licenses that require a minimum release below the dam of 100 cfs. Water diversions reduce downstream transport of inorganic material necessary to maintain habitat complexity and healthy

benthic environment. The effects of reduced flows in the bypass reach include a coarsening of the substrate and reduced habitat complexity below the dam. Flows in this section are augmented by up to 250 cfs from groundwater sources such that water chemistry in the lower bypass reach is dominated by groundwater characteristics. Summertime water temperatures in the bypass reach can decrease by 5–15°C during bypass operations.

Hydroelectric Peaking Reach

Hydropower operations directly affect water quality in the peaking reach below the J.C. Boyle powerhouse. PacifiCorp's annual licenses allow daily ramping up to 9 inches per hour for upramp and downramp operations. Frequent changes in river stage increase sedimentation and turbidity at the margins and degrade habitat necessary to support beneficial uses. Furthermore, because discharge through the powerhouse is frequently much greater than flows in the bypass reach, water quality characteristics in the peaking reach are dominated by water quality from J.C. Boyle reservoir. For these reasons, the rapid transition during peaking operations can cause changes to hydrology and water quality that are detrimental to beneficial uses downstream of the J.C. Boyle powerhouse.

6. Water Quality Standards

Oregon water quality standards are given in OAR 340, Division 041. DEQ expects the proposed action to temporarily impact the following water quality parameters following drawdown of the reservoir.

6.1 Statewide Narrative Criteria

OAR 340-041-0007

Relevant Sections

(1) Notwithstanding the water quality standards contained in this Division, the highest and best practicable treatment and/or control of wastes, activities, and flows must in every case be provided so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels . . .

(10) The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed;

(11) Objectionable discoloration, scum, oily sheens, or floating solids, or coating of aquatic life with oil films may not be allowed;

(12) Aesthetic conditions offensive to the human senses of sight, taste, smell, or touch may not be allowed.

Project nexus

The proposed action includes the removal of transformer oils, lubricating fluids, fuels, and other chemicals that may deleterious to fish or aquatic life, cause discoloration, scum, oily sheens, or floating solids, or result in offensive aesthetic conditions if released to waters of the state.

6.2 Bacteria

OAR 340-041-0009

(1) Numeric Criteria: Organisms commonly associated with fecal sources may not exceed the criteria in subsections (a)-(c) of this section:

(a) Freshwater contact recreation

(A) A 90-day geometric mean of 126 E. coli organisms per 100 mL;

(B) No single sample may exceed 406 E. coli organisms per 100 mL.

Project nexus

Project facilities at the J.C. Boyle Dam include an on-site septic system. To reduce the potential for bacterial contamination to surface waters, the on-site septic system should be decommissioned in accordance with Oregon Administrative Rule Chapter 340, Division 71.

6.3 Biocriteria

OAR 340-041-0011

Waters of the State must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

Relevant Definitions

(5) "Appropriate Reference Site or Region" means a site on the same water body or within the same basin or ecoregion that has similar habitat conditions and represents the water quality and biological community attainable within the areas of concern.

(6) "Aquatic Species" means plants or animals that live at least part of their life cycle in waters of the state.

(17) "Designated Beneficial Use" means the purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Water Resources Commission.

(19) "Ecological Integrity" means the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

(50) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin or water body are met. This must be established by accepted biomonitoring techniques.

(75) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

Project nexus

This narrative criterion recognizes compliance with individual criteria may not fully capture the synergistic effects resulting from multiple stressors and cumulative impacts on aquatic species and other resident biological communities. Use of the biocriteria guards against cumulative effects of stressful water quality conditions that otherwise meet water quality numeric criteria. Consequently, this biocriteria

standard extends broad protections to all beneficial uses and complements numeric criteria to address physical or chemical impacts to aquatic habitats.

Benthic macroinvertebrates are indicators of the biological condition of waterbodies. Generally, waterbodies in healthy biological condition support a wide variety and high number of macroinvertebrate taxa, including many that are intolerant of pollution. Indices of biological integrity use benthic macroinvertebrates as general indicators of water quality based upon the richness or diversity of pollution tolerant and resistant species. Benthic macroinvertebrates are also particularly sensitive to changes in fine and coarse sediment load, which could occur under the Proposed Action (USDOI, Dec. 2012).

6.4 Dissolved Oxygen

OAR 340-041-0016

Relevant Sections

- (1) For water bodies identified as active spawning areas in the places and times indicated on the following Tables and Figures set out in OAR 340-041-0101 to 340-041-0340: Tables 101B, 121B, and 190B, and Figures 130B, 151B, 160B, 170B, 180A, 201A, 220B, 230B, 260A, 271B, 286B, 300B, 310B, 320B, and 340B, (as well as any active spawning area used by resident trout species), the following criteria apply during the applicable spawning through fry emergence periods set forth in the tables and figures and, where resident trout spawning occurs, during the time trout spawning through fry emergence occurs:
 - (a) The dissolved oxygen may not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, then the DO criterion is 9.0 mg/l;
 - (b) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels must not be less than 95 percent of saturation;
 - (c) The spatial median intergravel dissolved oxygen concentration must not fall below 8.0 mg/l.
- (2) For water bodies identified by the Department as providing cold-water aquatic life, the dissolved oxygen may not be less than 8.0 mg/l as an absolute minimum. Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 8.0 mg/l, dissolved oxygen may not be less than 90 percent of saturation. At the discretion of the Department, when the Department determines that adequate information exists, the dissolved oxygen may not fall below 8.0 mg/l as a 30-day mean minimum, 6.5 mg/l as a seven-day minimum mean, and may not fall below 6.0 mg/l as an absolute minimum (Table 21);
- (3) For water bodies identified by the Department as providing cool-water aquatic life, the dissolved oxygen may not be less than 6.5 mg/l as an absolute minimum. At the discretion of the Department, when the Department determines that adequate information exists, the dissolved oxygen may not fall below 6.5 mg/l as a 30-day mean minimum, 5.0 mg/l as a seven-day minimum mean, and may not fall below 4.0 mg/l as an absolute minimum (Table 21).

Table 9: Applicable Dissolved Oxygen Criteria for Klamath Basin

River Miles	River Segment	Dissolved Oxygen Criteria	Salmonid Spawning Period	Non-spawning period (year round) numeric criteria (mg/L)	Spawning Period Numeric Criteria
231.5 - 253	Upper Klamath Lake Outlet to Keno Dam	Cool water	None	6.5 as a 30-day mean minimum 5.0 as a 7-day minimum mean 4.0 as an absolute minimum	NA
207 – 231.5	Keno Dam to Oregon – California State line	Cold water	Jan. 1 – May 15 ³	8.0 as a 30-day mean minimum 6.5 as a 7-day minimum mean 6.0 as an absolute minimum	11.0 mg/L or not less than 95% saturation

Project nexus

Dissolved oxygen is one of the principal parameters used to determine water quality in support of aquatic life. Maintaining adequate concentrations of dissolved oxygen is vital to the support of fish, invertebrates, and other aquatic life. Sediment impounded by the dam contains organic and inorganic substances that will temporarily increase biochemical oxygen demand during reservoir drawdown. DEQ will require monitoring and certain mitigation measures, as described in Section 7, to mitigate the effects of reduced oxygen saturation to the extent practicable. DEQ expects dam removal will result in improved water quality conditions and a net ecological at the conclusion of the compliance time schedule established in Section 6.9.

6.5 Nuisance Phytoplankton Growth

OAR 340-041-0019

- (1)(a) The following values and implementation program must be applied to lakes, reservoirs, estuaries and streams, except for ponds and reservoirs less than ten acres in surface area, marshes and saline lakes:
- (b) The following average Chlorophyll-a values must be used to identify water bodies where phytoplankton may impair the recognized beneficial uses:
 - (A) Natural lakes that thermally stratify: 0.01 mg/l;
 - (B) Natural lakes that do not thermally stratify, reservoirs, rivers and estuaries: 0.015 mg/l;

³ Per Feb. 2004 memo from DEQ to EPA, DEQ is applying the spawning criteria for resident trout spawning from Jan.1 through May 15 each year.

Project nexus

Chlorophyll-*a* is a surrogate for algal biomass. Excessive blooms can violate the Chlorophyll-*a* value for open waters and the Statewide Narrative Criteria for aesthetic conditions.

Excessive phytoplankton growth can also contain certain species of toxic algae, including *Microcystis aeruginosa*, which contains microcystin, a cyanotoxin that can cause sickness in humans and can bioaccumulate in aquatic organisms. Oregon Administrative Rules do not contain criteria for microcystin. The Public Health Division of the Oregon Health Authority issues Advisory and Sampling Guidance documents for harmful algal blooms. OHA developed a guideline value for microcystin in recreational water bodies of 4 µg/L (OHA, 2018).

6.6 pH

OAR 340-041-0185(1)

(1) pH values may not fall outside the following ranges:

- (a) Fresh waters except Cascade lakes: pH values may not fall outside the range of 6.5-9.0. When greater than 25 percent of ambient measurements taken between June and September are greater than pH 8.7, and as resources are available according to priorities set by the Department, the Department will determine whether the values higher than 8.7 are anthropogenic or natural in origin;
- (b) Cascade lakes above 5,000 feet altitude: pH values may not fall outside the range of 6.0 to 8.5.

Project Nexus

The pH of water determines the solubility and biological availability of chemical constituents such as nutrients phosphorus, nitrogen, and carbon and heavy metals such as lead and copper. In the case of heavy metals, the degree to which they are soluble determines their toxicity. The pH is also affected by biological processes such as photosynthesis and algal respiration. During drawdown, the availability of organic and inorganic compounds will increase in the water column. Chemical and biological activity caused by this activity may temporarily affect pH in the water column.

6.7 Temperature

OAR 340-041-0028

(4) Biologically Based Numeric Criteria. Unless superseded by the natural conditions criteria described in section (8) of this rule, or by subsequently adopted site-specific criteria approved by EPA, the temperature criteria for State waters supporting salmonid fishes are as follows:

[...]

- (e) The seven-day-average maximum temperature of a stream identified as having Lahontan cutthroat trout or redband trout use on subbasin maps and tables set out in OAR 340-041-0101 to 340-041-0340: Tables 121B, 140B, 190B, and 250B, and Figures 180A, 201A, 260A and 310A may not exceed 20.0 degrees Celsius (68.0 degrees Fahrenheit).

Project Nexus

Temperature significantly influences the biological activity and growth of aquatic organisms. The higher the water temperature, the greater the biological activity. Because oxygen saturation decreases with higher

temperature, water temperature also directly influences the rate of chemical reactions in water, which in turn affects biological activity. During drawdown, the thermal regime below the dam will change due to the thermal mass associated with the impounded water. DEQ expects this effect to be temporary. Once the reservoir is empty, the river temperature will likely reflect the natural thermal regime.

6.8 Toxic Pollutants

OAR 340-041-0033

Toxic Substances

(1) Toxic Substances Narrative. Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife or other designated beneficial

Project Nexus

Contaminated sediments affect water quality through the transmission of toxic compounds to water. Once in the water, toxic compounds can enter the food chain and cause harm to aquatic life and human health. Oregon DEQ does not have numeric sediment criteria. Rather, DEQ uses a risk-based approach that considers the contaminants present, concentrations, extent of contamination, toxicity of contaminants, and pathways of exposure to aquatic life and human health. Risk-based screening levels are found in DEQ guidance documents (DEQ 2017a, DEQ 2017b). DEQ's risk-based assessment results in a determination of acceptable or unacceptable risk, and actions required to reduce risk to acceptable levels.

6.9 Compliance Time Schedule

Oregon Administrative Rules allow DEQ to issue a section 401 water quality certification for the federal license or permit authorizing the removal of J.C. Boyle Dam on the Klamath River that includes a time schedule for compliance with water quality standards. DEQ may issue a certification if DEQ finds the long-term ecological benefits outweigh short-term impacts, and that long-term water quality improvements will occur in a timely manner. As described below, DEQ finds that dam removal and related restoration activities will provide a net ecological benefit, with long-term benefits of river restoration outweighing unavoidable short-term adverse impacts to water quality.

6.9.1 Basin-Specific Criteria (Klamath)

Criteria for rendering a decision are given in OAR 340-041-0185(5) and are evaluated below.

6.9.1.1 Limited Duration

The dam removal and its associated water quality impacts will be of limited duration.

Studies filed in support of the 2012 EIS/EIR determined reservoir drawdown would have a significant short-term effect on suspended sediment and dissolved oxygen concentrations. The analysis found the short- and long-term effects of the action on other parameters would be less than significant. For this reason, analyses in the 2012 EIS/EIR include only modeled responses to suspended sediment and dissolved oxygen concentrations. DEQ believes it is reasonable to estimate the duration of water quality impairment due to project-related effects based on the expected duration of impacts to suspended sediment and dissolved oxygen concentrations.

Suspended Sediment

Modeling data predict suspended sediment concentrations will peak briefly above 2,000 to 3,000 mg/l but will quickly decrease below 100 mg/L for 5–7 months, and below 10 mg/L for 6–10 months following

drawdown. Because most sediment export will occur during the initial drawdown period and because of the comparatively small volume of material impounded by J.C. Boyle dam, suspended sediment concentrations are not expected to sustain into the second year following drawdown at levels that impair beneficial uses. However, DEQ expects sediment redistribution and the effects of seasonally high flow events to cause temporary periods of elevated suspended sediment during the second year following drawdown. Based on this evaluation, DEQ expects no adverse effects caused by elevated suspended sediment concentrations after the second year (i.e., 24 months) following the start of reservoir drawdown.

Dissolved Oxygen

The 2012 EIS/EIR did not model the effects of dam removal on dissolved oxygen in Oregon. However, the modeled effects of dissolved oxygen below Iron Gate Dam indicates minimum dissolved oxygen concentrations remain generally above 5.0 mg/l within 15 miles downstream of the dam and increase above 8.0 mg/l about three months following drawdown. Because J.C. Boyle Reservoir contains significantly less sediment, DEQ believes dissolved oxygen deficits will be far less and of shorter duration than modeled effects below Iron Gate Dam. Furthermore, because oxygen deficits are influenced by oxygen-demanding substances in sediments, DEQ believes the duration of any oxygen impairment experienced in the Oregon hydroelectric reach will not be longer than the duration of suspended sediment in the water column. For this reason, DEQ believes project effects on dissolved oxygen will not exceed 24 months following the start of reservoir drawdown.

Finding: DEQ expects the overall impact to water quality will be of limited duration.

6.9.1.2 Net Ecological Benefit

Dam removal and related restoration activities will provide a net ecological benefit.

DEQ finds the long-term benefits outweigh the short-term impacts expected during dam removal because dam removal will restore the free-flowing condition of the river, provide improved habitat and access for salmonids, reduce fish disease, improve other aspects of water quality, and add approximately four miles of riverine habitat that will in turn contribute to increased water quality. Removal of the Oregon developments of the Lower Klamath Project will eliminate water quality impairments related to the management of the resource for power production described above in section 5.5. Following dam removal, DEQ expects rapid re-colonization of the former peaking reach by macroinvertebrates. These benefits that will accrue following the compliance time schedule far outweigh the short-term (e.g., during the compliance time schedule) water quality impacts of dam removal.

Finding: DEQ finds that dam removal will result in a net ecological benefit.

6.9.1.3 Minimizing Adverse Effects to Beneficial Uses

The dam removal will be performed in a manner minimizing, to the maximum extent practicable, adverse impacts to water quality, threatened and endangered species, and beneficial uses of the Klamath River.

Drawdown of J.C. Boyle Reservoir is scheduled to occur in January of the drawdown year to coincide with seasonally high flows and lowest seasonal water temperature. The timing of the proposed action was selected to minimize oxygen deficits caused by increased sediment loading because available data indicated high seasonal background dissolved oxygen levels (i.e., winter, high flow conditions) and colder winter water temperatures increase dissolved oxygen solubility.

KRRC has also proposed aquatic resource measures to minimize the effect of dam removal on aquatic species potentially affected by the proposed action. The measures were developed in consultation with state and federal resource agencies, tribal representatives, and other stakeholders and include methods to minimize the effects of the action on threatened and endangered species in the basin.

Finding: DEQ finds that implementation of these measures will minimize to the extent practicable the short-term impacts of dam removal on water quality, threatened and endangered species, and beneficial uses of the Klamath River.

6.9.2 DEQ Finding: Compliance Time Schedule for Dam Removal

DEQ establishes a time schedule, as allowed by OAR 340-041-0185(5), of 24 months from the start of drawdown for project effects to no longer contribute to violations of Oregon water quality standards. The time schedule expects that water quality impacts are directly related to sediment mobilization which occurs principally during periods of highest seasonal flow. While DEQ expects most sediment mobilization to occur during the first season, it is reasonable to expect additional movement during the subsequent years as transported material redistributes during high flow events. The potential for sediment movement attenuates rapidly after drawdown because of revegetation efforts, drying and hardening of exposed sediment, and the reduced volume of remaining sediment. Upon completion of the time schedule, DEQ expects no residual effects of the proposed action will cause violations of water quality standards.

7. Evaluation and Findings

7.1 Reservoir Drawdown

J.C. Boyle Dam impounds about 1,000,000 cubic yards (+/- 30 percent) of sediment, sixty-six percent of which consists of fine-grained material. Sediment thickness ranges up to about 20 feet and is greatest within the former river channel near the dam. During drawdown, hydraulic velocity through the reservoir will increase causing downcutting at the sediment interface beginning at the reservoir's upstream end and progressing along the flow path as the surface elevation decreases. Erosional forces are less near the reservoir margins. For this reason, sediment outside the former river channel is considered to be less susceptible to movement and will likely remain as permanent terrace deposits. Overall, the volume of sediment export is estimated at 36 to 57 percent of the total sediment mass depending on hydrologic conditions during the drawdown year. Figure 8 (KRRC, 2017. p. 2-6) depicts a typical cross section illustrating the relative depth of sediments in the former river channel and marginal areas.

KRRC estimates that J.C. Boyle reservoir will be mostly drawn down by the end of February of the drawdown year. Because of limited storage, the reservoir may partially refill and drain in response to storm events. During an extremely wet year it is also possible the reservoir may not fully empty until late March. However, modeling efforts predict most sediment mobilization will occur during the initial drawdown period with lesser quantities mobilized during subsequent refilling and draining events. In July of the drawdown year KRRC expects to remove the final elements of the impoundment releasing a small additional volume of sediment and causing a brief increase in suspended sediment concentrations.

DEQ expects the immediate effects of reservoir drawdown to cause a general lowering of water quality that will peak during the first 1-3 months and gradually improve as sediment load decreases and a natural seasonal hydrograph is restored. Sediments contain organic and inorganic substances that will increase turbidity, reduce oxygen saturation, increase the presence of algal material, decrease light penetration, and increase nutrient concentrations. Suspended sediment concentrations will decrease gradually with declining seasonal flows and as the remaining volume of residual sediment is exported from the reservoir basin. As suspended sediment moves downstream and concentrations decrease, water quality in the affected reach will gradually improve as sediment redistributes to areas of lower hydraulic energy and bankside restoration efforts stabilize the exposed reservoir terraces. By the end of the compliance time schedule established in Section 6.9, DEQ expects the effects of dam removal will no longer contribute to exceedances of water quality standards.

Dam removal will eventually lead to a restored natural river condition in which the effects of the operating hydroelectric project and the removal of the facilities will no longer affect water quality. Once river flows return to a natural hydrograph, water quality and suspended sediment load in the project reach will be influenced by incoming water quality, ambient conditions, and the hydrology of the free flowing river system.



Figure 8: Cross Section of J.C. Boyle Reservoir Sediments

7.1.1 Evaluation of Reservoir Drawdown on Water Quality

Reservoir drawdown and the rapid export of accumulated sediment will have immediate and significant effects on downstream water quality. The principle effect will be a sharp rise and prolonged presence of suspended sediment in the water column. Included in the sediment load are other materials such as nutrients, algal cell material, organic and inorganic contaminants or other substances that may directly or indirectly affect water quality. DEQ's evaluation of the effects of reservoir drawdown on the water quality is presented in the following sections.

7.1.1.1 Suspended Sediment

Short-Term Effects

The Applicant proposes to initiate reservoir drawdown on or about January 1 of the drawdown year when precipitation, river flows, and turbidity are near seasonally high levels. Hydraulic modeling estimates suspended sediment concentrations will increase sharply following drawdown and may briefly exceed 2,000 mg/l to 3,000 mg/l for up to two months. Figures 9 through 11 (USDOI. 2012. Vol 1. 3.2 -92) depict modeled suspended sediment response below J.C. Boyle dam for two years following drawdown assuming dry, median, and wet hydrologic conditions. Under all modeled flow scenarios, suspended sediment concentrations decrease steadily for several months as the volume of erodible sediment decreases and reservoir water is diluted by inflow from above the project. In July of the drawdown year, KRRC expects to begin final deconstruction of the J.C. Boyle embankment section resulting in a free-flowing river condition by about September of the drawdown year. This final breach will mobilize a small volume of remaining material causing suspended sediment concentrations to increase briefly as indicated in the figures; however, overall sediment concentrations will continue to decrease late into the year with declining seasonal flows. Depending on hydrologic conditions, the return of higher winter flows the year following drawdown may further erode and mobilize sediment causing a secondary increase in suspended sediment concentrations. However, DEQ expects most of the erodible material will have been transported downstream within the 24 months following drawdown.

Suspended sediment can cause a range of stressful conditions in fish and other aquatic life. These conditions range from minor changes in behavioural patterns to sub-lethal effects caused by moderate to major physiological stress. DEQ does not have a water quality standard for suspended sediments. However, DEQ evaluated the proposed action to ensure adequate protection of existing and beneficial uses, compliance with statewide narrative criteria and basin-specific criteria that require minimizing, to maximum extent practicable, impacts of dam removal on threatened and endangered species, and

beneficial uses in the Klamath Review. Short-term effects of suspended sediment on salmonids were evaluated using guidance that relates salmonid exposure time to suspended sediment concentrations and a severity index that ranks overall effects on salmonids. [NCRWQCB 2006, Newcombe and Jensen 1996, as cited in KRRC, 2017)]. The water quality effects determination uses a predicted suspended sediment value of 30 mg/L over a 4-week exposure period as a general threshold of significance. Hydraulic modeling predicts suspended sediment concentrations will persist near or above 30 mg/l for a period up to four months following dam removal under low and median conditions and slightly longer under wet hydrologic conditions. Salmon were extirpated from the Oregon hydroelectric reach following construction of the California Lower Klamath Project dams located in California. However, it is reasonable to conclude these conditions will result in similarly stressful conditions on resident aquatic life.

The Oregon Department of Fish and Wildlife does not anticipate permanent long term impacts to any of the affected native resident fish populations. The reversion of the J.C. Boyle reservoir habitat to a riverine environment will benefit the resident Redband Trout population and the other native resident fishes. Source populations to populate impacted river reaches below J.C. Boyle dam and the J.C. Boyle reservoir reach exist in Spencer Creek and the mainstem Klamath River reach below Keno dam. ODFW believes that the direct effects of the dam removal activities on the native fish assemblages will likely have dissipated by 24 months. ODFW further considers it likely any major passage barriers resulting from the actual dam removal and reservoir drawdown will be resolved within the 24-month compliance time schedule; however, ODFW typically prescribes a five-year monitoring period to verify these expectations⁴.

Long-Term Effects

The Oregon hydroelectric reach will be restored to a free-flowing condition following reservoir drawdown and dam removal. By the end of the compliance time schedule, DEQ expects the temporary effects of the proposed action will no longer cause violations to Oregon water quality standards. Once the river's natural hydrograph is restored DEQ expects seasonal variation in suspended sediment loading consistent with similar locations above the project. In general, however, sediment input above the project area is low due to lower rates of precipitation and runoff, more resistant and permeable geologic terrain, and relatively low topographic relief. As a result, DEQ expects any changes to long-term suspended sediment transport to be minor.

Dam removal also eliminates the adverse effect of hydropower operations on water quality described specifically in section 5.5. Relative to the existing condition, the Klamath River will no longer experience stage change variations due to daily peaking operations of J.C. Boyle Powerhouse. Restoring natural flow variation in the peaking reach will improve vegetation, increase soil stability, and reduce sediment input from riparian areas.

⁴ Ted Wise, Oregon Department of Fish and Wildlife. Email correspondence to Chris Stine, Oregon Department of Environmental Quality. 5/15/2018.

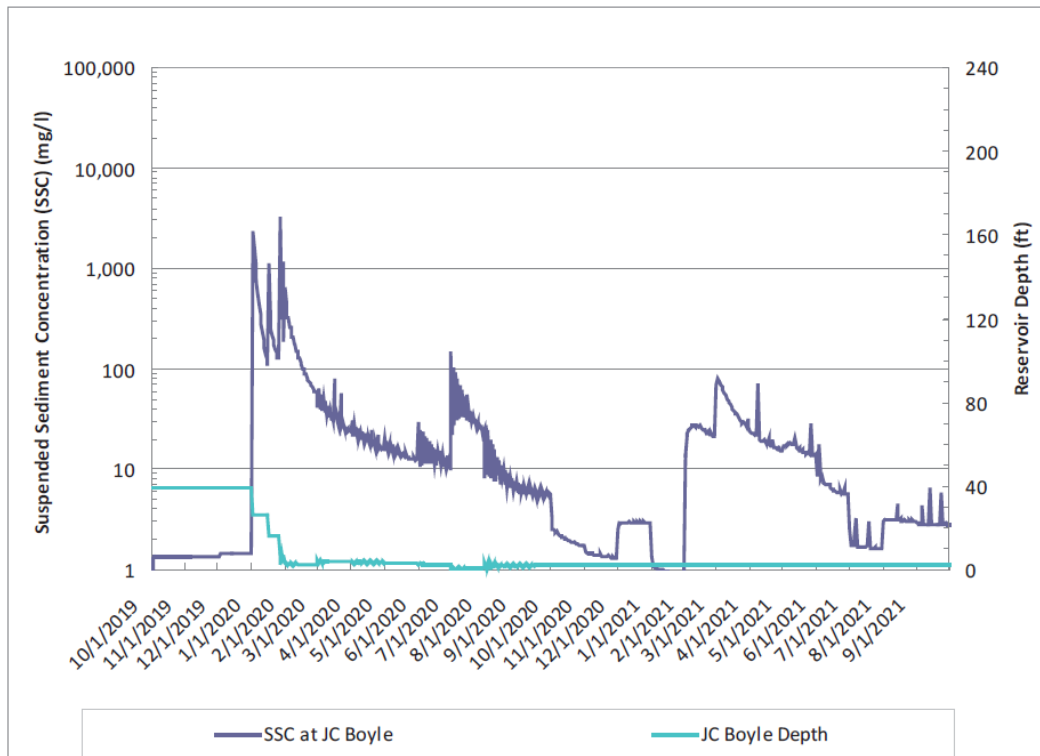


Figure 9: Modeled Suspended Sediment Concentrations below JC Boyle - Dry Hydrology

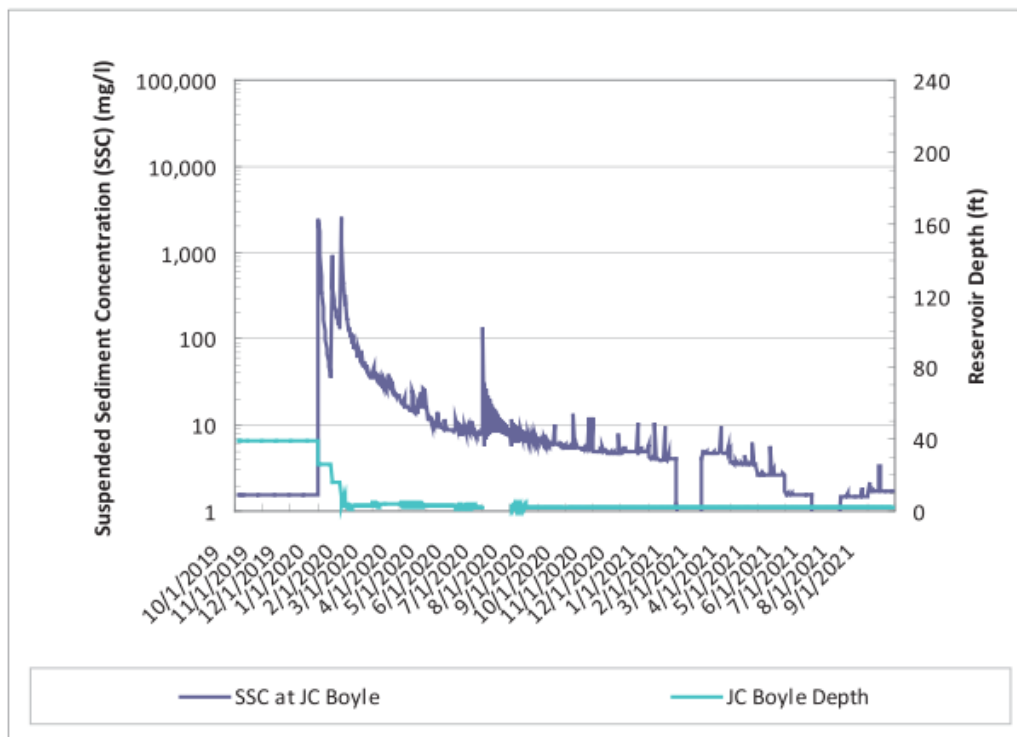


Figure 10: Modeled Suspended Sediment Concentrations below JC Boyle - Median Hydrology

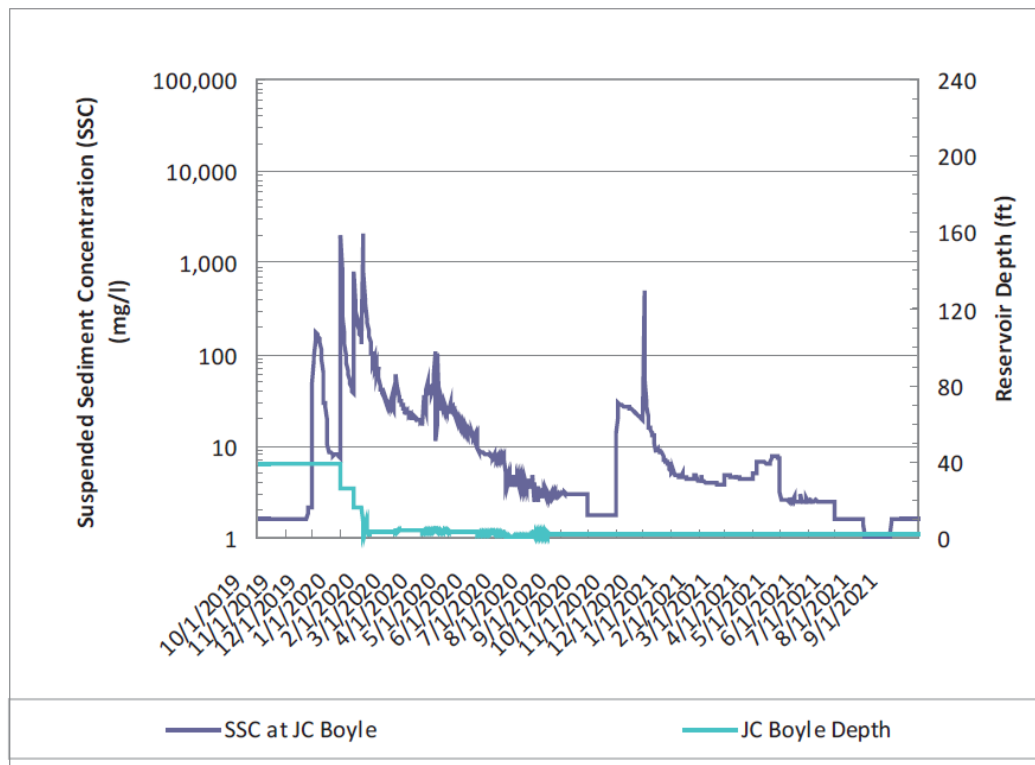


Figure 11: Modeled Suspended Sediment Concentrations below JC Boyle - Wet Hydrology

7.1.1.2 Dissolved Oxygen

Short-Term effects

Sediment loading during reservoir drawdown will cause short-term increases in immediate and biological oxygen demand and corresponding reductions in dissolved oxygen downstream from J.C. Boyle Reservoir. Oxygen demand is driven principally by oxidation of organic matter contained in impounded reservoir sediments once it is released to the water column. Oxygen saturation is expected to decrease following drawdown and gradually increase as organic matter is oxidized and through aeration of the water column and suspended sediment concentrations decrease.

The Applicant did not model predicted oxygen levels in the Oregon hydroelectric reach in response to dam removal. DEQ determined that modeling in the reach below Iron Gate Dam is sufficient for comparative purposes. In the reach below Iron Gate Dam, the minimum dissolved oxygen concentration occurs within about two miles below the dam with peak immediate oxygen demand and biological oxygen demand occurring about six weeks following drawdown. As the sediment plume flows downstream the effect on dissolved oxygen decreases due to chemical and biological oxidation of organic material, reaeration, and dilution. Model estimates predict dissolved oxygen levels return to 5 mg/l about 15 miles below Iron Gate Dam under all modelled hydrologic scenarios.

DEQ expects the effects of dissolved oxygen depletion below J.C. Boyle Dam will be considerably less than the modeled effects below Iron Gate Dam for several reasons. First, the volume of sediment impounded by J.C. Boyle is much less than the volume behind either Copco No.1 or Iron Gate dams. The smaller volume of material will presumably have less effect on water quality. Secondly, J.C. Boyle sediment contains a higher mineral fraction (e.g., sand) than is present in Iron Gate Reservoir. DEQ

believes the higher mineral content will result in lower immediate oxygen demand. Third, DEQ believes any dissolved oxygen deficit may be partially mitigated by drawing reservoirs down in the cold, high-flow winter months when oxygen saturation potential is highest. The timing of the scheduled drawdown also maximizes dilution and minimizes rates of biological oxygen demand. Last, the gradient on the Oregon section of the hydroelectric reach is steeper than the portions below the California developments. The steepness increases turbulence and reaeration of flows in this reach.

Oxygen deficits are driven, in part, by oxygen demand of the release of sediments. Because modeling data predict suspended sediments concentrations decline following drawdown, DEQ believes the duration of any oxygen deficit experienced in the hydroelectric reach will be brief.

Long-Term Effects

The previous section describes the period of reduced dissolved oxygen that DEQ expects in response to reservoir drawdown. Sediments containing high biochemical demand will temporarily depress oxygen saturation. However, as this material passes downstream and concentrations become diluted by inflow from above the project, oxygen saturation will increase. By the end of the 24-month compliance time schedule DEQ expects no residual project-related effects that will cause violations to the biologically-based numeric criteria established to support the dissolved oxygen water quality standard.

Following completion of the 24-month compliance time schedule, DEQ expects dissolved oxygen concentrations in the Oregon hydroelectric reach will be unaffected by the influence of dam removal or the operation of hydroelectric project. Oxygen saturation in this reach will be influenced by inflow from upstream sources, ambient conditions, and the natural seasonal hydrograph. Cold groundwater sources and higher flows in the steeper sections of the bypass reach should improve oxygen conditions relative to current hydroelectric operations. However, DEQ expects no adverse effects to dissolved oxygen caused by dam removal after conclusion of the compliance time schedule.

7.1.1.3 Nuisance Phytoplankton Growth, Chlorophyll-a, Nutrients

Short-Term Effects

J.C. Boyle dam intercepts the downstream transport of particulate matter including organic nutrients such as total nitrogen and total phosphorous. Reservoir drawdown will increase concentrations suspended material including these and other nutrients present in sediments.

DEQ expects minimal adverse effects on water quality from the release of nutrient compounds during reservoir drawdown. Organic nutrients and other fine-grained material are expected to remain in suspension with little deposition occurring in the Oregon hydroelectric reach. Furthermore, drawdown is proposed during months of colder temperatures and diminished available sunlight that reduces primary production, nutrient cycling, and bioavailability. Because nutrients will be exported quickly through the system during a period of reduced bioavailability DEQ believes potential effects on water quality (e.g., phytoplankton production, pH fluctuations, etc.) will be minimal. DEQ expects nutrient concentrations to decrease as the remaining sediment volume decreases and as inflow into the project area dilutes the concentration of suspended material.

Long-Term Effects

Removal of the dam will have no long-term effect on nutrient concentrations, chlorophyll-a, or phytoplankton growth in the hydroelectric reach relative to the pre-development condition of the river. J.C. Boyle Reservoir is a small, comparatively fast flushing reservoir that has not historically experienced

algal blooms as severe as those in the larger Lower Klamath Project reservoirs. Restoration of a natural hydrograph in this reach will further reduce conditions that favor primary production.

DEQ believes dissolved and particulate nutrients associated with impounded sediments will remain in suspension and will flow quickly out of the hydroelectric reach following drawdown. Runoff from exposed reservoir embankments may represent minor sources of nutrient input; however, contributions from these sources will be minor and temporary. DEQ expects nutrient concentrations in the river will be unaffected by physical impoundments or the residual effects of dam removal after compliance of the compliance time schedule.

7.1.1.4 pH

Short-Term Effects: pH

Drawdown will be completed during the colder months when temperature, sunlight, and other factors generally limit biological activity that may affect pH. For this reason, DEQ expects no significant adverse short-term effects on pH during drawdown.

Long-Term Effects: pH

DEQ expects no adverse project-related effects on pH following completion of the compliance time schedule. Hydrogen ion concentration is strongly influenced by biological activity, dissolved oxygen, and temperature. Because DEQ expects no long-term adverse effects on these parameters, DEQ believes the proposed action will similarly have no influence on long-term hydrogen ion concentration.

Restoration of the seasonal flow regime will likely moderate pH variability during the spring and fall relative to current operating conditions. DEQ expects enhanced periphyton growth in the peaking reach following dam removal. The effects of photosynthesis and respiration in this reach will likely contribute to higher diel pH variability on a long-term basis. However, any long-term change in annual pH levels from current conditions will occur in response to adaptations to a restored hydrograph rather than residual effects from dam removal.

7.1.1.5 Temperature

Short-Term Effects: Temperature

Reservoir drawdown and dam removal will have little short-term effect on water temperature in the hydroelectric reach. Drawdown will occur during winter months when water temperatures generally meet the biologically-based numeric criteria for temperature. Also, because the volume of J.C. Boyle Reservoir is small, KRRC expects reservoir drawdown to increase flows by just 19 cfs. DEQ expects any thermal contribution from the release of stored reservoir water will be obscured by other factors such as the large volumes of cold groundwater accretion in the bypass reach.

Long-Term Effects: Temperature

Dam removal will eliminate all project-related water storage in the hydroelectric reach. The natural thermal regime of this reach will be restored quickly following removal of all river impoundments. Because dam removal will eliminate thermal storage caused by water impoundment, DEQ believes the project will no longer exert thermal influence in the hydroelectric reach following completion of drawdown.

7.1.1.6 Turbidity

Reservoir drawdown will rapidly release a large volume of sediment that will have an immediate effect on turbidity downstream of J.C. Boyle Dam. No modeling data are available to predict turbidity response. However, the expected response of suspended sediment concentrations may be interpreted to qualitatively assess project effects on turbidity. Figures 9 to 11 illustrate modeled suspended sediment response under three flow scenarios. The figures suggest suspended sediment concentrations rapidly attenuate during the first year following drawdown and approach pre-removal levels during periods of the second year. DEQ believes turbidity will respond similarly although the relative increase in turbidity over incoming conditions will be verified during water quality monitoring.

7.1.1.7 Organic and Inorganic Contaminants

Sediment volume in J.C. Boyle reservoir is small. Because Link River and Keno Dams trap sediment transport above the project, the sediment entering J.C. Boyle reflects the composition of terrestrial soils. Inorganic and organic contaminants are present in the sediment, elutriate (sediment pore water), and fish tissue in J.C. Boyle Reservoir (CDM, 2011). However, the concentration of contaminants is generally low, the pattern of distribution of contaminants is not consistent, and concentrations generally reflect background levels.

In 2004-2005, a study evaluated sediment contamination in J.C. Boyle Reservoir sediment cores. The study found generally low levels of metals, pesticides, chlorinated acid herbicides, polychlorinated biphenyls, volatile organic compounds, semi-volatile organic compounds, cyanide, and dioxins. Where chemicals in sediment were detected above reference screening levels, the degree of exceedance was small and were consistent with regional background conditions (CDM, 2011)

7.1.1.8 Biocriteria

Short-Term Effects: Biocriteria

The short-term effects of reservoir drawdown include increased loading of suspended sediments and periods of reduced dissolved oxygen concentrations. The short-term effect of reservoir drawdown will have adverse effects on aquatic resources. These effects may range from nuisance and sub-lethal effects such as reduced foraging and navigational skills to lethal effects such as burial of sessile organisms including filter-feeding macroinvertebrates.

KRRC proposes to mitigate for the immediate effects of dam removal on resident populations of Lost River Sucker and Shortnose Sucker, which are listed as endangered by the US Fish and Wildlife Service. The proposal requires KRRC to salvage and translocate up to 100 of each species to off-channel habitat prior to drawdown.

KRRC also proposes to conduct an abundance and overwintering study of the Western Pond Turtle and, if warranted, undertake appropriate mitigation measures to reduce impacts to populations in or near J.C. Boyle Reservoir.

DEQ expects reservoir drawdown will significantly impact aquatic resources and the biocriteria water quality standard during the compliance time schedule. However, DEQ believes measures proposed by the Applicant will mitigate short-term effects to aquatic resources to the extent practicable.

Long-Term Effects: Biocriteria

The Oregon Department of Fish and Wildlife does not anticipate any long-term impact to native resident fish populations in the affected reach. ODFW further believes that direct effects of the dam removal

activities on the native fish assemblages will likely have dissipated by 24 months, although it is uncertain if specific fish populations will have returned to pre-drawdown abundance within 24 months.

DEQ expects the long-term effects of reservoir drawdown and dam removal to be beneficial aquatic resources and support attainment of the biocriteria water quality standard. Drawdown and dam removal will eliminate current peaking operations below J.C. Boyle powerhouse. Frequent and rapid stage change in this reach reduces the abundance and complexity of macroinvertebrate communities, causes stranding of juvenile fish, and prevents the establishment of stable riparian vegetation and habitat.

DEQ expects that following dam removal benthic macroinvertebrates will recolonize this reach rapidly through drift or dispersal of adults from established upstream communities. Additionally, reformation of river channels in the reservoir reaches would expand suitable substrate for macroinvertebrate habitat. Overall, DEQ believes long-term benefits will accrue through the restoring connectivity and habitat complexity to levels consistent with pre-development conditions. Based on this expectation and the assessment provided by ODFW, DEQ believes the aquatic conditions necessary to support the biocriteria water quality standard will be met within the compliance time schedule established in Section 6.9.

7.1.2 Findings: Reservoir Drawdown

DEQ has established a compliance time schedule of 24 months from the start of drawdown after which DEQ expects residual impacts attributable to the proposed action will no longer contribute to violations of Oregon water quality standards. Based on our review and evaluation of the proposed action, DEQ anticipates reservoir drawdown may cause exceedances of certain water quality standards for up to 24 months following the start of reservoir drawdown. However, DEQ expects these impacts to be temporary and will be mitigated to the extent practicable by measures proposed by the Applicant and as enforced by conditions required by this section 401 water quality certification. DEQ finds these actions acceptable and necessary to achieve a net ecological benefit and provide long-term improvements to water quality.

DEQ is reasonably assured that impacts caused by reservoir drawdown will not cause violations to water quality standards following conclusion of the compliance time schedule provided KRRC complete reservoir drawdown and related activities according to the methods and schedule proposed in the Application and the conditions of this section 401 water quality certification. In particular, the following conditions are required:

1. Water Quality Management Plan

To confirm that project effects do not contribute to conditions that violate water quality standards by the conclusion of the 24-month compliance time schedule, the KRRC must implement a Water Quality Management Plan in accordance with the conditions in Section 2 the section 401 water quality certification.

2. Miscellaneous Measures Protective of Beneficial Uses

- a) To ensure protection of existing beneficial uses, KRRC shall provide or maintain fish passage at all artificial obstructions created or affected by the Proposed Action that prevent or delay the migration of native migratory fish in accordance with the conditions in Section 4(a) of this section 401 water quality certification.
- b) To minimize to the extent practicable adverse effects to threatened and endangered species, KRRC shall implement Aquatic Resource Measure AR-6 and implement a Western Pond Turtle abundance and overwintering study and, if necessary, mitigation in accordance with the conditions in sections 4(b) and 4(c) of this section 401 water quality certification, respectively.

3. Reservoir Drawdown and Diversion Plan

KRRC must prepare and implement a Reservoir Drawdown and Diversion Plan in accordance with the conditions in Section 5 the section 401 water quality certification. The Reservoir Drawdown and Diversion Plan is required to confirm that drawdown procedures are performed in a manner consistent with those evaluated in this water quality certification.

4. Annual Compliance Report

KRRC must annually prepare a compliance report in accordance with the conditions in Section 11 of the section 401 water quality certification.

7.2 Facilities Removal

The KRRC proposes to remove J.C. Boyle dam, powerhouse, canal, all appurtenant facilities associated with the J.C. Boyle hydroelectric development of the Lower Klamath Project according to the removal limits described in the Application as the Full Removal Alternative. Facilities Removal will include deconstruction and removal of all physical elements of the hydroelectric facility, the permanent on-site placement of fill material, waste management and disposal, decommissioning of temporary and/or permanent staging areas and access roads, recreational facilities, and other activities necessary to achieve Facilities Removal.

DEQ's evaluation of project effects on water quality is presented in the following sections.

7.2.1 Evaluation of Facilities Removal on Water Quality

DEQ's evaluation of the Applicant's proposal to remove project facilities on water quality is presented in the following sections.

7.2.1.1 *Suspended Sediment*

Construction and deconstruction activities associated with Facilities Removal can compact, erode, and destabilize surface areas and increase the potential for erosion and sedimentation in stormwater runoff. Facilities Removal will occur following completion of reservoir drawdown. It is reasonable to assume that deconstruction activities will be performed during seasonally wet periods, which will increase the potential for sediment loading in stormwater runoff.

Three locations are proposed for permanent on-site placement of deconstruction material. These include the J.C. Boyle powerhouse tailrace, the emergency spillway scour hole, and the original borrow pit near the dam's right abutment. Four temporary staging areas are proposed including near the forebay, near the powerhouse, and two locations near the right abutment. Other elements scheduled for removal are identified in Table 3.

Short-Term Effects: Suspended Sediment

Temporary impacts can occur during the use of heavy equipment to prepare access roads and staging areas, deconstruct project elements, and transport material to permanent on-site and off-site locations. DEQ expects the Applicant will apply for and receive coverage under a National Pollution Discharge and Elimination System 1200C construction stormwater permit administered by DEQ to implement and comply with appropriate measures to reduce pollutants in stormwater runoff during Facilities Removal.

Long-Term Effects: Suspended Sediment

Disturbed areas that are not properly restored after completion of site-disturbing activities can develop erosional drainages that can result long-term sources sediment input. DEQ will require the Applicant to develop and implement an Erosion and Sediment Control Plan to provide controls and monitoring to

ensure long-term stability of on-site disposal locations. DEQ will review the plan prior to approval for implementation. DEQ expects the conditions required by the plan will adequately protect against long-term erosion and sediment runoff and include requirements to take appropriate actions, as warranted, to correct site conditions that fail to provide long-term stability of disturbed areas.

7.2.1.2 Dissolved Oxygen

Material can enter waterways during Facilities Removal that can increase oxygen demand. Substances in sediment runoff or accidental chemical spills can temporarily reduce oxygen saturation. DEQ will require the Applicant to implement measures in the Erosion and Sediment Control Plan and appropriate spill prevention measures in a Spill Prevention Control and Countermeasure Plan to reduce the potential for releases to waterways during Facilities Removal.

7.2.1.3 Nuisance phytoplankton growth

DEQ considers it unlikely the actions associated with Facilities Removal will have a short-term or long-term effect on algal production. However, to the extent that actions undertaken during Facilities Removal may affect materials either directly or indirectly in a manner that promotes algal growth if released to waterways, DEQ expects these actions to be adequately mitigated through implementation of plans and conditions required by this water quality certification.

7.2.1.4 pH

Facilities Removal may introduce construction materials, such as concrete, welding slag, chemicals, or other material, into waterways that may affect water quality parameters, including pH. DEQ expects potential impacts to this parameter may be mitigated by implementing provisions of the Erosion and Sediment Control Plan that addresses best management practices during deconstruction activities.

7.2.1.5 Temperature

DEQ considers it unlikely the actions associated with Facilities Removal will have a short-term or long-term effect on water temperature.

7.2.1.6 Turbidity

Short-Term Effects: Turbidity

Actions requiring the removal of physical project elements in or near open water can increase short-term turbidity. The principal activities requiring work in the Klamath River include the removal of the embankment and spillway sections of J.C. Boyle dam and the back-filling the powerhouse tailrace. Other actions, such as the removal of the wooden bridge below J.C. Boyle Dam, the restoration of the forebay scour hole, or activities considered as partial removal options described in the Application, may also temporarily increase turbidity.

The Applicant expects deconstruction of the dam will be completed within about one year following the start of drawdown. Water quality impacts during this period will include a prolonged period of elevated turbidity primarily associated with sediment export. DEQ expects the effects of dam deconstruction and removal will be largely indistinguishable from those caused by drawdown. DEQ further believes the magnitude and duration of effects attributable to dam deconstruction and removal will be less than that of sediment transport. For this reason, DEQ expects the effects of dam removal to not cause a violation of the turbidity water quality standard after conclusion of the 24-month compliance time schedule prescribed in Section 6.9.

Long-Term Effects: Turbidity

DEQ will require the Applicant to undertake restoration and monitoring actions consistent with a Sediment and Erosion Control Plan approved by DEQ to prevent erosive conditions that may increase sediment runoff and/or increased turbidity in the Klamath River and its affected tributaries.

7.2.1.7 Organic and Inorganic Contaminants

Facilities Removal may introduce construction materials, including organic or inorganic contaminants, into waterways that may decrease water quality and reduce support for beneficial uses. DEQ expects this possibility may be mitigated by implementing provisions of the Erosion and Sediment Control Plan that address best management practices during Facilities Removal.

7.2.1.8 Biocriteria

Facilities Removal will temporarily reduce water quality necessary to fully support aquatic resources near the project area. The proposed activity will temporarily increase sedimentation and turbidity and may introduce substances that may have direct or indirect effects on water quality parameters necessary to support aquatic resources. DEQ expects the duration of water quality impacts will be less than 24 month compliance time schedule presented in Section 6.9. DEQ also expects the effects of these actions may be partially mitigated by implementing appropriate management plans, such as the Erosion and Sediment Control Plan, which address best management practices to reduce impacts during site disturbing activities.

The long-term effects of the action will provide a net benefit for aquatic resources. Removal of J.C. Boyle dam will restore the area of substrate habitat beneath the dam's embankment section and convert about four miles of lacustrine habitat to riverine conditions. Benthic macroinvertebrates are expected to recolonize this reach from established upstream communities. Restoration of this reach will benefit aquatic resources and support long-term attainment of the biocriteria water quality standard.

7.2.2 Findings: Facilities Removal

Based on our evaluation of project effects, DEQ expects that removing the physical elements of the project according to the full removal alternative presented in the Application will temporarily increase sedimentation and turbidity due activities proposed in flowing portions of the river. However, DEQ believes these effects will be of lesser magnitude and shorter duration than related impacts caused by sediment mobilization during reservoir drawdown. Because the effects of these actions will partially overlap, DEQ believes the observed effects of Facilities Removal will be indistinguishable from the greater impacts associated with reservoir drawdown.

Based on these findings, DEQ is reasonably assured that impacts caused by completing Facilities Removal will not cause violations to water quality standards following conclusion of the compliance time schedule provided KRRC complete the proposed action according to the methods and schedule proposed in the Application and the conditions of this section 401 water quality certification. The following conditions are required:

1. Remaining Facilities and Operations Plan

KRRC must prepare and implement a Remaining Facilities and Operations Plan in accordance with the conditions in Section 7 of the section 401 water quality certification. The Remaining Facilities and Operations Plan must identify elements that will not be removed during project implementation and describe their potential impact on water quality.

2. Site Restoration, Sediment and Erosion Control

KRRC must develop an Erosion and Sediment Control Plan and undertake site restoration actions in accordance with the conditions in Section 8(a) of the section 401 water quality certification.

3. Waste Disposal and Management Plan

KRRC must develop and implement a Waste Disposal and Management Plan in accordance with the conditions in Section 9 of the section 401 water quality certification.

4. Spill Response

The Licensee shall maintain a Spill Prevention, Control, and Countermeasure Plan in effect at all times in accordance with 40 CFR Part 112 and the conditions in Section 10 of this section 401 water quality certification.

5. Stormwater Management

The Licensee shall register with DEQ for coverage under National Pollution Discharge Elimination System general permit 1200-C before any construction activities occur that cumulatively disturb more than one acre of and may discharge stormwater to surface waters of the state.

6. On-Site Septic Systems

To reduce the potential for bacterial pollution, the Licensee shall decommission all Lower Klamath Project on-site septic systems in accordance with Oregon Administrative Rule Chapter 340, Division 71.

7.3 Reservoir Management and Restoration

Following completion of reservoir drawdown, the KRRC proposes to complete reservoir restoration activities as proposed in the Reservoir Area Management Plan presented in Appendix G of the Technical Support Document. The plan revises and supersedes the previous Reservoir Area Management Plan dated 2011 and prepared by US Bureau of Reclamation in support of the Secretarial Determination. The revised plan establishes short- and long-term goals intended to promote mobilization and dispersal of sediments during drawdown; stabilize remaining reservoir soils; restore volitional fish passage in the Klamath River and affected tributaries; promote revegetation efforts using native stock; and minimize the establishment of invasive exotic vegetation during restoration efforts. The plan proposes to accomplish these goals through coordinated programs to promote reservoir revegetation (e.g., native plant propagation, control of invasive exotic vegetation), reservoir restoration (e.g., tributary connectivity, creation of aquatic habitats, bank stabilization, placement of large wood), monitoring, and adaptive management.

7.3.1 Evaluation of Reservoir Management and Restoration on Water Quality

DEQ's evaluation of the Applicant's proposal to conduct reservoir management actions according to the Reservoir Area Management Plan on water quality 13 is presented in the following sections.

7.3.1.1 Suspended Sediment

Modeling data predict reservoir drawdown will mobilize from about 40 to 60 percent of accumulated sediment depending on the magnitude of flows during drawdown. Much of the remaining sediment will be located in the broad floodplain upstream of the SR 66 bridge. Sediments remaining on exposed terraces are susceptible to slumping, cracking, and erosion. A principle objective of the Reservoir Area Management Plan is to stabilize these soils by establishing native vegetation on exposed terraces during the first year following drawdown. The plan includes a proposal to hydroseed exposed terraces soon after drawdown followed in the summer by planting pole cuttings, saplings, and salvaged woody vegetation. The Applicant proposes an integrated pest management program and best management practices to

increase survival and reduce weeds and invasive exotic vegetation. The plan also includes maintenance measures (e.g., watering, weed suppression, monitoring) to ensure survival. Restoration actions include tributary connectivity and placement of structures (e.g., large wood) to reduce erosion and dissipate hydraulic energy.

DEQ expects the measures proposed in the Reservoir Area Management Plan will promote restoration of the former reservoir area and reduce the potential for erosion and long-term sediment input to the Klamath River and affected tributaries. DEQ will require KRRC to implement the monitoring and adaptive management provisions of the plan to ensure these objectives are met and the project does not contribute to increased sedimentation of the Klamath River.

7.3.1.2 Dissolved Oxygen

Short-Term Effects: Dissolved Oxygen

DEQ expects saturated sediments to slowly release pore water resulting in elutriate runoff from exposed terrace deposits. Soluble substances, such as nutrients, pesticides, or others chemicals, may temporarily increase oxygen demand in receiving waters. The physical erosion of soft sediment shortly after drawdown may increase inputs of particulate matter that can also reduce oxygen potential. However, the saturated conditions that may support pore water drainage and soft erodible surfaces are considered temporary conditions that will diminish as sediments dry, and terraces stabilize. For this reason, DEQ considers the effects of these actions minor and unlikely to measurably affect dissolved oxygen saturation.

Long-Term Effects: Dissolved Oxygen

Completion of the reservoir restoration objectives will have a positive effect on water quality, including dissolved oxygen. The proposed actions will increase vegetation cover, habitat complexity, stream connectivity, and off-channel hydrology. DEQ expects these actions may reduce solar thermal gain, reduce sediment input, and increase oxygen saturation potential and nutrient utilization. DEQ will require water quality monitoring above and below the project actions to verify this expectation.

7.3.1.3 Nuisance phytoplankton growth

Short-Term Effects: Nuisance phytoplankton growth

Pore water drained from exposed sediment terraces may transport dissolved substances, including nutrients, to receiving waters. DEQ expects the potential for sediment runoff is greatest in the year following drawdown before revegetation efforts have fully stabilized terrace sediments. DEQ believes there is a low potential for short-duration nutrient input to promote nuisance algal growth for several reasons. First, DEQ expects the potential for nutrient loading to be greatest in the months immediately following drawdown during a period of seasonally low algal productivity. In addition, the conversion of the reservoir to a free-flowing condition reduces the aquatic conditions necessary to support algal growth. Last, DEQ expects the measures proposed in the restoration plan will establish vegetation that will stabilize sediment and aid in biological uptake of available soluble nutrients. For these reasons, DEQ considers it unlikely the proposed action will contribute to a violation of this water quality standard.

Long-Term Effects: Nuisance phytoplankton growth

DEQ expects reservoir restoration efforts to have a positive effect on water quality. In particular, the objectives of creating and maintaining tributary connectivity will increase streamflow and reduce conditions that promote algal growth. Other restoration goals, including creating off-channel habitat and channel complexity improve aquatic function and reduce conditions that favor nuisance algal production.

To ensure the objectives of the plan are met, DEQ will require KRRC to implement the monitoring and adaptive management provisions of the plan.

7.3.1.4 pH

Short-Term Effects: pH

Before sediment terraces are fully stabilized, DEQ recognizes the potential for elutriate runoff to introduce chemicals into receiving waterways. Because of restoration efforts and general sediment drying, the potential for elutriate runoff from sediments is considered short and unlikely to significantly affect the chemical composition or pH of the receiving waters. In the long-term,

Long-Term Effects: pH

DEQ expects the proposed action to have no measureable effect on pH once restoration efforts reach full potential. Should revegetation efforts or habitat restoration result in increased aquatic vegetation; DEQ considers it possible that diel pH variation may occur because of respiration and photosynthetic growth. However, these effects will presumably occur on a local scale and will not likely result in measureable pH variation in the mainstem Klamath River.

7.3.1.5 Temperature

DEQ expects reservoir restoration efforts to have a long-term positive effect on water temperature. Revegetation of reservoir embankment areas will presumably increase riparian shade potential thereby reducing thermal gain. In addition, creating and maintaining off-channel habitat and stream channel complexity may promote increased hyporheic exchange through marginal stream gravels. Hyporheic flow can cool overall water temperature and create localized zones of cool water refugia. DEQ expects reservoir restoration efforts identified in the Reservoir Area Management Plan will have a net ecological benefit and a positive effect on water quality including water temperature.

7.3.1.6 Turbidity

Short-Term Effects: Turbidity

The Applicant proposes field methods to achieve the objectives of the Reservoir Area Management Plan that may temporarily increase turbidity. These include physically removing sediment barriers to fish passage, increasing the roughness of floodplain sediments to promote seed propagation, placement of features such as large wood structures, and maintenance of existing plantings. These actions may temporarily disturb surface soils and increase turbidity. However, DEQ believes the effects of these actions may be mitigated by implementing best management practices proposed in the plan.

Long-Term Effects: Turbidity

Overall, DEQ finds the proposed action will likely reduce turbidity in the Klamath River and its affected tributaries. This is because the objectives of the restoration plan, which include creating and maintaining off-channel habitat, providing energy-dissipating structures in stream margins, and reducing sediment barriers including head-cuts, increase hydrologic complexity that can promote particulate settling. DEQ will require KRRC to monitor water quality and implement reporting and adaptive management portions of the Reservoir Area Management Plan to verify these expectations.

7.3.1.7 Organic and Inorganic Contaminants

DEQ expects the potential for sediment runoff is greatest in the year following drawdown before revegetation efforts have fully stabilized terrace sediments. DEQ believes there is a potential that erosion or elutriate runoff may transport organic or inorganic compounds present in sediment into receiving

waters. However, chemical analyses of sediments during the Secretarial Determination studies determined the concentration of most organic and inorganic chemicals in sediments was low and generally consistent with local background levels. For this reason, and because DEQ expects the proposed revegetation efforts will reduce the occurrence of runoff, DEQ believes the potential is low for the proposed activity to introduce organic or inorganic contaminants into the Klamath River or affected tributaries. DEQ believes this potential decreases further as objectives of the Reservoir Area Management Plan are achieved and implemented.

7.3.1.8 Biocriteria

DEQ believes implementation of the Reservoir Area Management Plan will increase the quantity and complexity of habitat for aquatic resources and, for this reason, will improve support for the biocriteria water quality standard. This position is based on the expectation that the Applicant will implement, achieve, and maintain the goals and objectives of the plan. In particular, the plan seeks to stabilize reservoir soils, restore volitional fish passage, increase off-channel habitat and create habitat complexity. If maintained, benthic macroinvertebrates are expected to recolonize this reach from established upstream communities. These objectives collectively improve water quality and create improved substrate necessary to support diverse benthic communities. DEQ will require KRRC to implement monitoring, reporting, and adaptive management components of the plan to ensure restoration goals are met and attainment of the biocriteria water quality standard is achieved.

7.3.2 Findings: Reservoir Management

Based on our evaluation of project effects, DEQ expects implementation of the measures proposed in the Reservoir Area Management Plan will have an overall positive effect on long-term water quality and result in a net ecological benefit. This position is based on the expectation that KRRC will implement the plan as proposed and according to any revisions or conditions required by this water quality certification. DEQ expects the effects of any short-duration water quality impacts, such as temporary increased turbidity or the possibility of elutriate runoff, are low and may be adequately mitigated by implementing the conditions of this certification.

Based on these findings, DEQ is reasonably assured that the effects of implementing reservoir restoration activities as proposed in the Reservoir Area Management Plan will not cause violations to water quality standards following conclusion of the compliance time schedule identified in Section 6.9. This finding is based on the expectation that KRRC completes the proposed actions according to the methods and schedule proposed in the Application and the conditions of this section 401 water quality certification, including the following:

1. Miscellaneous Measures Protective of Beneficial Uses

To maintain support for existing beneficial uses in the affected area, KRRC shall maintain fish passage at all artificial obstructions created or affected by the Proposed Action in accordance with the conditions in Section 4(a) of this water quality certification. The KRRC shall protect beneficial uses to the extent practicable as required by the conditions in Section 4.

2. Reservoir Area Management Plan

The KRRC shall develop and implement a Reservoir Area Management Plan in accordance with the conditions in Section 6 of this section 401 water quality certification. DEQ will require measures to minimize to the extent practicable impact to the Klamath River following dam removal.

8. Antidegradation

Water quality standards have three elements: the beneficial uses protected by the standard, numeric and narrative criteria that support these uses, and an antidegradation policy that governs how and when existing water quality may be lowered. EPA recently updated the antidegradation policy, as described in 40 CFR 131.12.

Section 131.12 Antidegradation policy and implementation methods.

(a) The State shall develop and adopt a statewide antidegradation policy. The antidegradation policy shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(i) The State may identify waters for the protections described in paragraph (a)(2) of this section on a parameter-by-parameter basis or on a water body-by-water body basis. Where the State identifies waters for antidegradation protection on a water body-by-water body basis, the State shall provide an opportunity for public involvement in any decisions about whether the protections described in paragraph (a)(2) of this section will be afforded to a water body, and the factors considered when making those decisions. Further, the State shall not exclude a water body from the protections described in paragraph (a)(2) of this section solely because water quality does not exceed levels necessary to support all of the uses specified in section 101(a)(2) of the Act.

(ii) Before allowing any lowering of high water quality, pursuant to paragraph (a)(2) of this section, the State shall find, after an analysis of alternatives, that such a lowering is necessary to accommodate important economic or social development in the area in which the waters are located. The analysis of alternatives shall evaluate a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity. When the analysis of alternatives identifies one or more practicable alternatives, the State shall only find that a lowering is necessary if one such alternative is selected for implementation.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

(b) The State shall develop methods for implementing the antidegradation policy that are, at a minimum, consistent with the State's policy and with paragraph (a) of this section. The State shall provide an

opportunity for public involvement during the development and any subsequent revisions of the implementation methods, and shall make the methods available to the public.

340-041-0004

Oregon's antidegradation policy can be found in its entirety in OAR 340-041-0004. The purpose of the antidegradation policy is described below:

Antidegradation

(1) Purpose. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340- 041-0007 through 340-041-0350 are intended to supplement the Antidegradation Policy.

Application of Standard

Under the federal Clean Water Act, states are required to adopt water quality standards and these standards must include an antidegradation policy. By regulation, EPA requires that antidegradation policies must maintain and protect existing uses and where water quality is better than what is required to support existing and designated beneficial uses, the state may allow additional degradation of waters only after satisfying specified procedural and substantive requirements.

DEQ's antidegradation policy provides a means for maintaining and protecting water quality of surface waters by requiring that all activities with the potential to affect existing water quality undergo review and comment prior to any decision to approve or deny a permit or certificate for the activity. The antidegradation policy complements the use of water quality criteria. View DEQ's antidegradation policy implementation document and other associated documents here:

<http://www.oregon.gov/deq/wq/Pages/WQ-Standards-Antidegradation.aspx>

Oregon Administrative Rules specifically address the expected temporary lowering of water quality in the Klamath River under the Proposed Action. As discussed in section 6.9 of this report, DEQ has demonstrated compliance with the requirements in OAR 340-041-0185(5).

DEQ Evaluation and Findings:

DEQ implements the antidegradation policy through the antidegradation review. Tier 1 and Tier 2 reviews are included in this antidegradation review.

- **Existing Use Protection:** The EPA Tier 1 antidegradation regulations are for protection of existing uses, defined in EPA's regulations as "those uses actually attained in the waterbody on or after November 28, 1975." The basic protection provided by Tier 1 applies to all waters, regardless of use designation. There have been no changes to the Klamath River since DEQ updated the designated uses in 2003. The existing uses in the Klamath River through the Project are equivalent to the designated uses. DEQ has determined that the Proposed Action, following implementation of the section 401 water quality certification with conditions, will protect designated uses, which are equivalent to existing uses. This analysis results in a finding that the project will protect existing uses.
- **High Quality Water Protection:** The antidegradation policy ensures that an activity in Oregon waters will not result in a lowering of water quality unless DEQ or the EQC finds that such a lowering is necessary and the benefits of the lowered water quality outweigh the environmental costs of the reduced water quality and that other conditions in the antidegradation policy also

apply. Usually, if DEQ finds that the activity will result in a lowering of water quality, DEQ must demonstrate in an in-depth Tier 2 review that such a lowering meets antidegradation requirements set out in 340-041-0004(6), for high quality waters, or 340-041-0004(9), for water quality limited waters, whichever is applicable. However, OAR 340-041-0185(5) applies to the Proposed Action. DEQ has evaluated the Proposed Action and has demonstrated compliance with the requirements in OAR 340-041-0185(5). The Proposed Action will result in short term lowering of water quality, but the Proposed Action is not expected to cause or contribute to a permanent lowering of water quality or an exceedance of water quality standards at the end of the compliance period specified in the water quality certification.

- DEQ is therefore, reasonably assured that the project is consistent with Oregon's antidegradation policy and that an in-depth antidegradation review is not necessary.

Based on the antidegradation review DEQ finds that federal requirements at 40 CFR 131.12 have been met; that state requirements at OAR 340-041-0004 have been met and that the Proposed Action subject to the conditions in the section 401 water quality certification is consistent with antidegradation requirements.

9. Compliance with CWA Sections 301, 302, 303, 306 and 307

In order to certify a project pursuant to section 401 of the federal Clean Water Act, DEQ must find that the project complies with applicable provisions of Sections 301, 302, 303, 306 and 307 of that Act and state regulations adopted to implement these sections. Sections 301, 302, 306 and 307 of the federal Clean Water Act deal with effluent limitations, water quality related effluent limitations, national standards of performance for new sources and toxic and pretreatment standards. These requirements address point source discharges such as cooling water discharges, stormwater, and sewage discharges. Section 303 of the Act relates to Water Quality Standards and Implementation Plans. The federal Environmental Protection Agency has adopted regulations to implement Section 303 of the Act. The EQC has adopted water quality standards consistent with the requirements of Section 303 and the applicable EPA rules. Water quality standards are presented in OAR Chapter 340, Division 41. EPA has approved the Oregon standards pursuant to the requirements of Section 303 of the Act. Therefore, the Project must comply with Oregon Water Quality Standards to qualify for certification. As discussed above in this report, the proposed Project will comply with Oregon Water Quality Standards and therefore Section 303 of the Clean Water Act, provided the conditions to the section 401 Certification are satisfied.

Required NPDES Permits

Facilities engaged in upland construction activities that will disturb more than one acre of land and which may reasonably result in surface water discharge to waters of the state must obtain a construction stormwater permit from DEQ. Prior to initiating the project, DEQ will require KRRC to apply for and obtain coverage under a National Pollution Discharge Elimination System 1200C construction stormwater permit to minimize pollution discharge from ground-disturbing activities.

10. Evaluation of other Appropriate Requirements of State Law

Once a Proposed Action is determined to qualify for section 401 certification, additional determinations may be made to identify additional conditions that are appropriate in a certification to assure compliance with other appropriate requirements of state law, pursuant to section 401(d) of the Clean Water Act. Such requirements are “appropriate” if they have any relation to water.

10.1 Department of Water Resources

Under ORS 468.045(2) DEQ is required to make findings that its approval or denial is consistent with the standards established in ORS 543A.025(2) to (4). These standards can be summarized below:

1. Standards that mitigate restore and rehabilitate fish and wildlife resources adversely affected by the Project;
2. Any plan adopted by the Pacific Northwest Power and Conservation Planning Council;
3. The Environmental Quality Commission’s water quality standards;
4. Operational standards that ensure the Project does not endanger public health or safety, including “practical protection from vulnerability to seismic and geologic hazards”;
5. Standards that protect, maintain, or enhance wetland resources such that the Project may not result in a net loss to existing wetland resources; and
6. Standards that protect, maintain, or “enhance other resources in the Project vicinity including recreational opportunities, scenic and aesthetic values, historic, cultural and archaeological sites, and botanical resources” such that reauthorization may not result in net loss to these existing resources.

The original license (and water right) HE 180 for the J.C. Boyle project expired at the end of December 2006. On November 1, 2011, OWRD issued a draft proposed order and a draft proposed water right to re-license the J.C. Boyle Project until December 30, 2020. OWRD accepted comments, but have since just continued the hydroelectric license on a year-to-year authorization according to ORS 543A.150. Following completion of decommissioning, OWRD would consider the conversion of the hydroelectric right to an instream water right.

10.2 Division of State Lands

ORS 196.795-990 requires that permits be obtained from the Oregon Division of State Lands prior to any fill and removal of material from the bed or banks of any stream. Such permits, when issued, may be expected to contain conditions to assure protection of water quality to protect fish and aquatic habitat.

The proposed dam removal will include construction and de-construction activities that typically require a removal-fill permit from DSL. Permits issued by DSL are administratively coordinated with issuance of a dredge and fill permit by the U.S. Army Corps of Engineers under section 404 of the Clean Water Act.

KRRC shall demonstrate consistency with the substantive requirements of ORS 196.795-990 prior to initiating facilities removal.

10.3 Department of Land Conservation and Development

ORS Chapter 197 contains provisions of state law requiring the development and acknowledgement of comprehensive land use plans. This chapter also requires state agency actions to be consistent with acknowledged local land use plans and implementing ordinances.

OAR 340-048-0020 (2)(i)(A) require the application for section 401 certification to include land use compatibility findings prepared by the local planning jurisdiction. In the event a LUCS has not or cannot be issued, compatibility with local land use may alternatively be demonstrated pursuant to OAR 340-048-0020(2)(i)(B and C):

If land use compatibility findings have not been obtained, (the applicant may provide an exhibit which) identifies the specific provisions of the local land use plan and implementing regulations applicable to the activity and describes the relationship between the activity and each of the land use provisions identified in paragraph (A) of this subsection; and discusses the potential direct and indirect relationship to water quality of each finding or land use provision.

KRRC provided a memorandum via email on May 10, 2018 to demonstrate that the Project is compatible with the applicable comprehensive plan and land use regulations of Klamath County. DEQ will submit this exhibit to Klamath County for review and comment.

In the memorandum, KRRC compared the Klamath project activities to Klamath County Land Development Code (“KCLDC”), which implements the acknowledged Klamath County Comprehensive Plan (“KCCP”). KRRC notes that the Dam structure and related facilities proposed for removal, together with temporary staging and material disposal areas are located within the Forestry (F) zone designation. While portions of the reservoir proposed for drawdown are located in the Forestry/Range (FR) zone designation, the drawdown action is not a regulated activity under KCLDC.

The KRRC analyzed the KCLDC with respect to the following dam removal activities:

(1) use, maintenance, and improvement of roads and other transportation facilities for construction access; (2) use of land for temporary construction staging areas; (3) development of and use of disposal sites for material from the deconstruction of the dam structure and associated facilities; (4) vegetation removal; (5) and demolition of various structural improvements.

Road Maintenance: KCLDC 50.040.A. permits outright in all County zones “[n]ormal ... maintenance, repair, and preservation activities of existing transportation facilities.” The Project will use multiple existing roads and bridges for construction access and hauling and transportation of material. KRRC proposes routine maintenance on access roads within the project area. Therefore, the Project’s road maintenance complies with the KCLDC road maintenance code.

Road Improvement: KCLDC 50.040.B conditionally permits road widening and construction as an “Extensive Impact Service and Utility” use in every County zone. The Project contemplates widening the access road from OR 66 to JC Boyle Dam and the Disposal Access Road. Therefore, the Project’s road widening needs comply with the KCLDC road improvement code.

Dam Alteration and Temporary Staging Areas: The Forestry (F) zoning designation applies to the Dam structure/powerhouse and all associated staging areas. The Forestry (F) zone permits outright “[p]hysical alterations to the land auxiliary to forest practices,” including but not limited to landfills, dams, and

reservoirs. KCLDC 55.015.C. KRRC notes that KCLDC 55.015.C authorizes dam removal outright, together with necessary construction staging areas required for this purpose.

Disposal Sites: KRRC will develop two disposal sites for the Project by clearing vegetation and stripping and stockpiling topsoil. Both disposal sites are located in the Forestry (F) zone. Physical alterations auxiliary to forest practices associated with dams and landfills are permitted outright. KRRC notes that disposal sites associated with dam removal or “alteration” is allowed outright as an accessory activity.

Property Development Standards: KRRC notes that Development in the Forestry (F) zone is also subject to limited property development standards. The standards include minimum lot size, residential density, lot size and shape, building heights and setbacks, fences walls and screenings, landscaping, signs, parking and access. KRRC notes that standards for residential density, lot size and shape, building heights and setbacks, fences, walls and screenings do not apply to the apply to the project since these standards apply to subdivision, partitions or residential developments.

KRRC notes that the minimize lot size for development in the Forestry (F) zone is 80 acres. KRRC will undertake all Project’s activities on lots larger than 80 acres. The Project will not include any signs that viewable from public streets. KRRC notes that there are no established parking standards for activities associated with the Project. KRRC notes that Access to or from a state highway is subject to Oregon Department of Transportation. KCLDC 71.020.C. KRRC notes that the Project will not eliminate existing access points.

Vegetation/tree Removal: The KRRC proposes the removal of trees to facilitate road widening and the removal of vegetation to prepare disposal sites and construction staging areas. KRRC notes that such activities are not subject to regulation under the KCLDC.

Facilities Removal: the KRRC proposes demolition of certain private transportation facilities. KRRC also contemplates removal of recreational facilities in and around the Dam’s reservoir. KRRC notes that these activities are not subject to regulation under the KCLDC

Removal of Transportation Facilities: KRRC proposes demolition of several road and one bridge as part of the Project activities. KRRC notes that demolition and/or removal of transportation facilities is not subject to regulation under the KCLDC except in conjunction with new land construction.

Removal of Recreational Facilities: KRRC notes that the Project contemplates removal of recreational facilities in the Dam’s reservoir. KRRC notes that Oregon Statewide Planning Goal 8 concerns recreation needs. The KRRC notes that the KCLDC is the County’s instrument for implementing the acknowledged in lieu of Goal compliance, and KCCP. KCLDC 10.020. No provision of the KCLDC prohibits or otherwise regulates KRRC from removing the facilities as discussed above.

DEQ Evaluation

Information presented in the memorandum and referenced above maintains the proposed activities comply with the requirements of Klamath County Comprehensive plan and implementing land use regulations. This section 401 water quality evaluation specifically addresses the potential impact of Project operations on water quality standards. Water quality criteria which may be impacted by Project operations are evaluated earlier in this document. DEQ conditions proposed activities, as warranted, providing reasonable assurance that these activities will comply with applicable water quality criteria.

DEQ Finding

DEQ believes the material submitted by KRRC in lieu of the LUCS application in the memorandum adequately identifies and addresses specific provisions of local land use and the implementing regulations applicable to the proposed activity. Furthermore, DEQ is reasonably assured that operation of the Project will not violate the water quality standards given in OAR 340, Division 041 conditioned on the

implementation of requirements described in each section of this Evaluations and Findings Report and the conditions in the section 401 certification. DEQ believes the memorandum prepared by KRRC adequately represents an exhibit as defined by OAR 340-048-0020(2)(i)(B) which demonstrates Project conformity with local land use regulations.

10.4 Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife administers the following state laws to provide and maintain passage around artificial obstructions, protect aquatic habitat and protect and restore native fish stocks.

- **ORS 541.890 – 541.972**

- Oregon Plan for Salmon and Watersheds

- Restore native fish populations and the aquatic systems that support them, to productive and sustainable levels that will provide environmental, cultural and economic benefits.

- **ORS 496.435**

- Policy to Restore Native Stocks

- Restore native stocks of salmon and trout to historic levels of abundance.

- **ORS 509.580 - 509.645**

- ODFW's Fish Passage Law

- Provide upstream and downstream passage at all artificial obstructions in Oregon waters where migratory native fish are currently or have historically been present.

- **OAR 635-007-0502-0509**

- Native Fish Management Policy

- To ensure the conservation and recovery of native fish in Oregon.

- **OAR 635-500-0100-0120**

- Trout Management

- Maintain the genetic diversity and integrity of wild trout stocks; and protect, restore and enhance trout habitat.

- **OAR 635-415-0000-0010**

- Fish and Wildlife Habitat Mitigation Policy

- Require or recommend mitigation for losses of fish and wildlife habitat. Applying these state laws, ODFW, in its recommendations to FERC under Section 10(j) of the Federal Power Act, identified certain measures as necessary for the protection, mitigation and enhancement of fish resources.

ODFW has participated in the licensing process for the Proposed Action and on the team that developed the aquatic mitigation measures.

10.5 Department of Environmental Quality

- **ORS 454.705 et seq. and OAR 340-071 and 340-073**

On-site Disposal of Sewage

The purpose of these rules is to prevent health hazards and protect the quality of surface water and groundwater. DEQ will require KRRC to decommission any on-site sanitary systems proposed for removal in accordance with procedures required by state law.

- **ORS 466.605 et seq. and ORS 468.300-460**

Requirements for Reporting and Cleanup of Spills of Petroleum products and Hazardous Materials

Requires submittal of plans and specifications for water pollution control facilities to DEQ for review and approval prior to construction. One of the purposes of these statutes and rules promulgated pursuant thereto is to prevent contamination of surface or groundwater.

DEQ will require the project proponent to implement their Hazardous Material Management Plan to meet statutory requirements and guard against downstream violation of these state regulations.

11. Public Comment

On May 23, 2018, DEQ issued a public notice seeking public comment on the draft Evaluations and Findings Report and Section 401 Water Quality Certification. On June 12, 2018, DEQ also held two public meetings and hearings at Oregon Institute of Technology in Klamath Falls, Oregon. The public comment period closed at 5:00 p.m. July 2, 2018. During this period DEQ received more than 100 comments from the public. DEQ developed its final certification decision in consideration of all comments received during this period.

Sediments

Comment: Sediment contains toxic chemicals

Response: Numerous sediment studies estimate the volume of sediment impounded by J.C. Boyle Dam range from about 900,000 to 1.3 million cubic yards. The report “Screening-Level Evaluation of Contaminants in Sediments from Three Reservoirs and the Estuary of the Klamath River, 2009-2011”, prepared for the US Department of Interior as part of the Secretarial Determination studies evaluated sediment and elutriate chemistry, laboratory bioassays, bioaccumulation studies, and tissue of fish from the reservoirs. The report concluded: “Klamath Reservoir sediments can be considered relatively clean, with no chemicals present at levels that would preclude their release into downstream or marine environments. Accordingly Klamath Reservoir sediments are expected to pose no adverse effects, limited effects, or minor effects under the five exposure pathways under the Proposed Action and No Action alternatives.” Where chemicals were identified at concentrations above DEQ screening level values, these compounds generally reflected the native presence, distribution and concentration in surrounding terrestrial soils and did not indicate the concentration or chemical alteration of reservoir sediments.

Comment: Sediment release will harm fish

Response: Reservoir drawdown will occur during seasonal flows to maximize sediment export. Sediment concentrations are expected to peak during the first three months but decrease rapidly thereafter. Aquatic

Resource plans developed in consultation with State, federal and Tribal fisheries agencies include mitigation measures to reduce impacts during reservoir drawdown. Exposure to high concentrations of suspended sediment can cause short-term stress, including mortality, in individual members of certain aquatic species. However, aquatic resource agencies conclude the short-term effects including the potential loss of individual animals will not adversely affect future populations of aquatic resource. Rather, fisheries agencies expect seasonal flow regimes and improved water quality will enhance aquatic habitat characteristics.

Comment: Dam removal will create sediment deposits in the river channel

Response: The Upper Basin contributes lower volumes of sediment from terrestrial erosion than occurs from lower river tributary systems. Core sample analysis indicate sediment grain-size behind J.C. Boyle Dam is generally small. The Secretarial Determination report on sediment characterization “predicted little to no discernible fine sediment deposition due to the overall fine grain nature of the sediments”.

Authority

Comment: Extend public comment period to July 23, 2018

Response: In response to requests from the public, DEQ extended the public comment period through July 23, 2018.

Comment: Dam removal should be decided based on popular vote

Response: The Federal Power Act grants the Federal Energy Regulatory Commission the authority to regulate interstate energy transmission and the licensing of energy projects including major hydroelectric facilities. Under section 401 of the federal Clean Water Act, federal agencies cannot issue permits for actions that may result in a discharge to waters of the state without first receiving water a quality certification from the state. Neither license orders issued by FERC nor water quality certifications issued by states require ratification by other processes including approvals by popular vote.

Comment: USC §1341(a)(2) stipulates that states must notify downstream states when a discharge is authorized that may affect the downstream state.

Response: The KRRC filed applications for section 401 water quality certification with both the Oregon DEQ and the California State Water Resources Control Board. The DEQ and SWRCB collaborated closely during the development of our respective certifications. The draft certifications include requirements to consult on certain actions such as the development of resource protection implementation plans. Because FERC cannot issue a surrender order absent one certification, the requirements contained in the certifications demonstrate this requirement is met.

Comment: Project violates DEQ’s water pollution prevention laws found in ORS 468B.

Response: ORS 468B.005 provides definitions for water pollution control laws including state policy regarding water quality and water pollution prevention. Oregon Administrative Rules 340-041-0185 contains water quality standards and policies that are specific to the Klamath Basin. Under these rules DEQ may issue a water quality certification for the federal license authorizing the removal of J.C. Boyle reservoir provided DEQ make certain findings. As presented in the Evaluation and Findings report, these findings are met. Specifically, DEQ determined that the water quality impacts of dam removal will be of limited duration, dam removal will occur in a manner minimizing adverse impacts, and dam removal will have a net ecological benefit. Additionally, DEQ has included a compliance schedule in the water quality certification so that by the end of the specified time schedule, the dam removal will not cause or contribute to a violation of water quality standards.

Comment: No contingency plan in the event KRRC cannot complete proposed action.

Response: On May 22, 2018, FERC approved the Independent Board of Consultants for the removal of the Lower Klamath Project. The BOC shall review and assess all aspects of the proposed dam removal process and the financial ability of the KRRC to carry out the process. FERC's decision to transfer the LKP license to the KRRC and, subsequently, issue a license surrender order will be based on responses to information requested by FERC in their March 15, 2018 order, including information pertaining to the:

- 1) Adequacy of available funding and reasonableness of updated cost estimates for the most probable cost and maximum cost for the full removal alternative, and the assumptions made to calculate those estimates;
- 2) Adequacy of amounts and types of insurance coverage and bonding arrangements for dam removal.

Effects on Community

Comment: Dams provide clean renewable energy

Response: The water quality certification addresses the proposed action's effect on water quality and aquatic life, as required under State of Oregon water quality regulations. Oregon's water quality rules prevent DEQ from considering the effect of project elements that do not have a direct nexus to water quality.

Comment: Failure to achieve objectives will harm property values and cause local taxes to increase.

Response: DEQ's concluded there was reasonable assurance the proposed action will comply with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, water quality standards found in OAR 340, Division 041, and other appropriate requirements of state law. Consequences of the project that do not address these provisions are not included in our analysis.

Comment: Loss of flood control, firefighting water, water management, recreational opportunities

Response: The water quality certification addresses the proposed action's effect on water quality and aquatic life, as required under State of Oregon water quality regulations. When evaluating applications for water quality certification, DEQ does not address other uses of reservoir water, like for firefighting.

Comment: Reservoir removal will harm nearby water wells.

Response: The Definite Plan includes a mitigation plan that provides for the deepening (or replacement) of an existing affected domestic or irrigation groundwater well so the groundwater production rate from the well is returned to conditions prior to dam removal. Implementing the groundwater mitigation plan is not a condition of the water quality certification.

Ecological Restoration

Comment: Restoration measures will not stabilize embankments

Response: The section 401 water quality certification requires KRRC to prepare and implement a Reservoir Area Management Plan within 90 days of license surrender. The plan will require measures to enhance soil stability through additional plantings, irrigation to maintain revegetated areas, contouring sediment to reduce slope, adding energy dissipating features such as large wood or boulders, modifying stream channel slope, or other methods deemed appropriate to achieve the goals and objectives of the plan. The plan will also require monitoring efforts to confirm these objectives are achieved. Last, the plan will include adaptive management procedures to develop and implement alternate strategies in the event restoration measures fail to achieve performance objectives. DEQ believes the requirements placed on the development and implementation of the plan provide sufficient direction and flexibility to achieve bankside stability.

Comment: Restoration benefits will outweigh short-duration impacts of dam removal.

Response: Comment acknowledged.

Comment: Reservoir restoration should include native plantings to increase riparian shade, suppress weeds, and stabilize sediment.

Response: DEQ agrees with the objectives in the comment.

Comment: Ecological restoration should include large wood placement for habitat enhancement.

Response: Use of large woody debris placements to achieve restoration objectives is proposed in the Reservoir Area Management Plan included in the 2017 Technical Support Document reviewed by DEQ.

Comment: Material should not be side-cast down the canyon during restoration of the JC Boyle canal.

Response: DEQ wishes to clarify the portion of the certification referenced by this comment. Actions originally proposed by KRRC included the reuse of existing side-cast material in the floor of the power canal as a measure to restore this area. KRRC does not propose, nor does DEQ support, the disposal of material on the canyon hillside.

Water Quality

Comment: Monitoring requirements do not ensure compliance

Response: Water quality monitoring is an essential tool to assess the effect of the proposed action on water resources. While monitoring by itself does not ensure compliance, data collected during the monitoring effort may guide decision-making to correct impairments observed during the monitoring period.

Comment: Project will lower water quality and harm fish

Response: Reports, modeling studies, and data reviewed by DEQ support the conclusion that dam removal will cause temporary impacts but will result in a net long-term improvement of water quality. The certification requires mitigation measures to reduce short-term adverse effects of the proposed action.

Comment: Dams benefit water quality by trapping contaminants and managing flow

Response: As noted in DEQ's Evaluation and Findings Report, water quality generally improves in the higher gradient reach below Keno Dam above the J.C. Boyle development. Turbulence in this reach increases dissolved oxygen and promotes the conversion of ammonia to nitrate and nitrite. The Evaluation and Findings Report also notes that J.C. Boyle dam slows and impounds a segment of the Klamath River causing retention of sediment, organic matter, and other material. Nutrient-rich material retained behind the dam promotes algal growth and affects parameters including dissolved oxygen and pH. The presence of the dam also interrupts the natural thermal regime that would otherwise exist without the dam.

Comment: Include water storage and release requirements to manage water following dam removal.

Response: Because the storage volume of J.C. Boyle Reservoir is comparatively small (i.e., up to 3,495 acre-feet) the increase in flow to drain the reservoir within the expected two-month schedule is also low. The increase in flow during drawdown does not warrant additional controls to manage water during reservoir drawdown.

Comment: The action will increase downstream temperature

Response: Studies referenced in the 2012 EIS concluded that removing J.C. Boyle Dam and eliminating hydropower peaking operations could alter overall water temperatures and diel temperature variation in the J.C. Boyle Bypass and Peaking Reaches. Absent the thermal mass from the reservoir, temperature models predict greater diel variability in the bypass reach because of reduced influence from groundwater sources. Restoration of a natural flow regime would slightly reduce maximum temperatures and decrease

diel variability in the peaking reach. The EIS concluded these changes would be less than significant in the bypass reach and beneficial in the peaking reach.

Comment: The water quality certification should require monitoring for TSS and TDS

Response: Total Suspended Solids and Suspended Sediment Concentration both measure the solid-phase material within the water column. Analyses for Total Suspended Solids are used to assess the performance of conventional treatment processes and the need for effluent filtration in reuse applications. Because the source of solid-phase material in the water column is derived from accumulated sediment, DEQ will require water measurements for suspended sediment concentrations.

Total Dissolved Solids (TDS) refers to the amount of dissolved substances in the liquid. These substances can include salts, minerals, metals, calcium and other compounds. The most commonly used method of determining TDS is measuring specific conductivity to detect the presence of ions in water. Section 2(c)(ii) of the section 401 water quality certification requires monitoring for conductivity.

Comment: Certain pesticides including DDT, DDE, and DDD and semi-volatile organic compounds were identified in sediment above bioaccumulation screening level values. Why doesn't the certification require sampling for these compounds?

Response: DEQ reviewed available information on the chemical composition, grain size, volume, and erodibility of reservoir sediments. In particular, DEQ considered data in the 2009-2011 Secretarial Determination reservoir sediment evaluation. The study included chemical analysis from 26 sediment sample locations in J.C. Boyle Reservoir. The findings of the study concluded:

- Reservoir sediments are not highly contaminated
- No consistent pattern of elevated chemical composition
- No single reservoir is more or less contaminated than others
- Chemical levels above screening levels may reflect regional background concentrations

The Secretarial Determination study on reservoir sediments indicates the chemical composition is consistent with regional background levels and does not suggest the Project has affected the concentration or alteration of contaminants. In addition, the 2011 Screening-Level Evaluation of Contaminants in Sediments from Three Reservoirs and the Estuary of the Klamath River concluded "the majority of sediment is of small size fraction and would remain in suspension during transport to the Pacific Ocean." For these reasons, DEQ believes the proposed action will not negatively affect water quality or beneficial uses below J.C. Boyle Dam.

Comment: The dams improve water quality

Response: Several commenters stated the reservoirs improve water quality by trapping sediment, releasing cold water, moderating flow releases during seasonal low flow periods, and providing habitat for threatened or endangered species. Overall, DEQ finds that the presence and operation of J.C. Boyle Dam has a negative influence on water quality. Hydropower diversions reduce instream flows and river

function necessary to maintain oxygenation, assimilate, nutrients, transport sediment, and regulate water chemistry.

Comment: The following changes were suggested to the Water Quality Monitoring Plan requirements:

1. Omit chlorophyll-a sampling during winter months
Response: DEQ will retain the requirement for monthly collection of grab samples. Section 2(d)(v) provides DEQ with discretion to modify monitoring requirements following the first year of data collection.
2. Require the same nitrogen and phosphorus parameters as in IM-15
Response: DEQ coordinated monitoring requirements for nutrients and other parameters with the California State Water Resources Control Board. Consistency with monitoring requirements of other programs was not a principle objective.
3. No averaged sonde readings; discrete measurements every half hour
Response: DEQ will adjust the certification to require the sub-hourly collection of measurements.
4. Comprehensive upstream and downstream monitoring for algae, temp, flow
Response: The certification requires KRRC to monitor water quality at locations above and below the proposed action.
5. Adaptive management section for accumulated toxic sediment in river channel
Response: As discussed elsewhere, sediment evaluation data indicate the chemical composition of impounded sediments reflects local background conditions and will generally remain suspended in the water column during drawdown. The certification provides DEQ with the discretion to modify monitoring requirements as warranted by water quality conditions.
6. Future water quality management for salmon, steelhead, suckers.
Response: The objective of the certification is to confirm whether the proposed action is contributing to water quality violations upon completion of the compliance schedule. Future management of water resources after completion of the project is not a requirement of the certification.
7. Expand scope of monitoring beyond project area
Response: DEQ's 401 authorities allow the Department to require monitoring to measure the effects of a proposed action on water quality. DEQ cannot require monitoring or other actions for activities that occur outside the area affected by the proposed activity.

Fish, Fish Passage and Aquatic Resources

Comment: Coho salmon are not native to Upper Klamath basin

Response: KRRC applied to DEQ for section 401 water quality certification for the removal of the Oregon developments of the Lower Klamath Project. DEQ's certification decision considers the effect of the proposed action on designated beneficial uses found in OAR 340, Division 041. KRRC's application does not request DEQ evaluate the effects of the action on fish reintroduction efforts.

Comment: Consider other reintroduction options before removing dams

Response: The water quality certification addresses the proposed project (reservoir drawdown, removal of dam and associated facilities, reservoir restoration and aquatic measures) effect on water quality and

aquatic life, as required under State of Oregon water quality regulations. DEQ did not evaluate options that were not of the proposed project as described in the application for water quality certification.

Comment: Aquatic resource measures to protect ESA listed Lost River and Short-Nosed Suckers should include genetic testing to screen for hybridization.

Response: Measures to mitigate impacts to aquatic resources were developed in consultation with appropriate resource agencies. Section 4(b) of the certification requires the Licensee to mitigate project effects on adult Lost River Sucker and Shortnose Sucker in J.C. Boyle Reservoir prior to drawdown. The measure proposes to relocate a portion of the population to off-channel habitat locations that do not currently contain Lost River Sucker and Shortnose Suckers. Requiring additional actions such as genetic testing is not required under Oregon water quality rules to protect these or other designated beneficial uses from potential impacts of the proposed action.

Comment: Project provides hatchery production

Response: The comment refers to production at the Iron Gate Hatchery below Iron Gate Dam. Because this facility is in California, the effects of the proposed action is not considered in DEQ's 401 analysis.

Comment: J.C. Boyle Reservoir submerged existing reef barriers including a section of the Klamath River identified as Moonshine Falls, which may represent an obstruction to fish passage. The 401 should identify this potential obstruction requiring mitigation.

Response: The certification requires KRRC mitigate for effects of the proposed action that negatively affect water quality and support for beneficial uses. KRRC is not responsible for altering naturally occurring physical features such as geologic outcrops.

Comment: The action will harm aquatic resources including endangered species.

Response: The 2012 EIS included aquatic resource plans to reduce short-term (<2 years) adverse effects of dam decommissioning. In 2017, an Aquatic Technical Work Group including representatives of KRRC, state and federal resource agencies, and tribal fisheries scientists refined these measures based on new scientific information developed since issuance of the 2012 EIS. These measures are subject to the final Biological Opinions for the Project. DEQ supports implementation of the proposed measures relevant to Oregon resources affected by the proposed action.

Comment: Dams provide flow augmentation to aid fish migration

Response: J.C. Boyle Dam is currently managed for the express purpose of hydropower production. The minimum required release below J.C. Boyle Dam is 100 cfs. No anadromous fish migration currently occurs upstream of Iron Gate Dam in California. For these reasons, and because of the small volume of the reservoir, J.C. Boyle is not managed to augment flow in the bypass reach below the dam.

Other Comments and Recommendations

Comment: Require a site security plan in the event cultural resources are encountered per Section 5(c)(iii).

Response: Section 5 of the certification requires the Licensee to develop a Reservoir Drawdown Plan that includes contingency and notification procedures for unforeseen events including the inadvertent discovery of cultural resources. The certification requires the Licensee to submit the Reservoir Drawdown Plan to DEQ for review and approval within 90 days after issuance of the FERC license surrender order. In Oregon, treatment of burials found on State or private lands are covered under Oregon Revised Statute (ORS) 97.745. The Licensee is required to perform actions required by the Plan in accordance with applicable state law including those governing the management of cultural resources encountered during reservoir drawdown.

Comment: Identify coordination between Licensee and BLM during removal of Topsy Campground.

Response: Topsy Campground is managed by BLM. It is the Licensee's responsibility to coordinate with BLM during the removal of water-related improvements at the campground required by this certification.

Comment: The Licensee should prepare an aquatic invasive species control plan to prevent the introduction of invasive species into the Klamath River and its tributaries.

Response: Section 4(e) of the Certification requires the Licensee to obtain coverage under NPDES General Permit 1200-C for discharge of construction stormwater. Coverage under this permit requires development of a site-specific Erosion and Sediment Control Plan. DEQ will require conditions in the Erosion and Sediment Control Plan to minimize the introduction of invasive species during ground-disturbing activities in the Project area.

Water Quality Certification Comments

Comment: Sunset Provision

KRRC seeks a general "sunset provision" seeking to limit KRRC's obligations upon license surrender. Specifically, KRRC seeks to include the following clause in Section 12 of the Draft Certification:

Sunset Provision: 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.

Reply: The State agrees that the FERC surrender order remains in effect until all conditions are satisfied. However, since these conditions may include license surrender articles imposed by FERC, or mandatory conditions required by States through their 401 authorities, including this provision is deemed unnecessary and potentially confusing. Assigning responsibilities to third-party contractors does not relieve the Licensee from compliance with the FERC surrender order.

Comment: Project-Specific Fee

KRRC requests DEQ give further consideration to the question of whether “project specific fees” may be assessed pursuant to ORS 543.080 on the KRRC’s proposed project. If such fees are to be imposed, the KRRC would also appreciate further discussion and a better understanding of the need for, and amount of such fees, relative to the criteria established by ORS 543.080(4) for making these determinations.

DEQ Response: State law authorizes a project specific fee to be imposed for DEQ’s “reasonable and necessary oversight of a holder’s implementation of the protection, mitigation and enhancement measures included in * * * a Federal Energy Regulatory Commission license.” DEQ finds that monitoring of adaptive management associated with the various resource restoration implementation plans will require DEQ consultation and oversight for a minimum of five years. The project-specific fee takes into account the following factors:

- (a) Experimental nature of the proposed mitigation;
- (b) Significance of the resource affected;
- (c) Need for ongoing agency involvement in reviewing the effectiveness of the proposed measure;
- (e) Overall nature of the protection, mitigation or enhancement measures.

DEQ will provide KRRC a biennial summary of the agency’s project specific expenditures, and this summary will confirm that the amounts charged are for permissible purpose of compensating the “agency’s reasonable and necessary oversight of a holder’s implementation of the protection, mitigation and enhancement measures included in * * * a Federal Energy Regulatory Commission license.”

Comment: Align Proposed Action with Description in Definite Plan

KRRC requests DEQ change references to “Detailed Plan” and “Technical Support Document” to “Definite Plan”.

Reply: DEQ issued its May 2018 Draft Certification based on an evaluation of the proposed action as described in the Detailed Plan, the application for section 401 water quality certification, and the September 30, 2017 Technical Support Document. Because the July 2018 Definite Plan was issued after the Draft Certification, DEQ could not rely on or cite information in the Definite Plan in its analysis.

DEQ will update references as noted above provided the changes reflected in the Definite Plan are consistent with the description of activities evaluated by DEQ. However, in order to determine that the description of activities evaluated by DEQ are identical between the Detailed Plan or Technical Support Document, or both, and the Definite Plan, DEQ requests that KRRC provide a document that makes this representation for each of the proposed changes between these documents. Unless until KRRC makes such representation, DEQ will retain the existing reference in the final certification. Modifications to the final certification may be accomplished consistent with state law should any changes be made to proposed action that may affect state water quality.

Comment: Maximum Limit on KRRC’s Monitoring Obligations

KRRC seeks to reduce the duration of water quality monitoring from “a minimum of four years” (as provided in the Draft Certification) to “a maximum of three years” following dam removal. KRRC requests this adjustment to align the monitoring program in the 401 with that in the Definite Plan.

Reply: Absent this sampling term DEQ cannot establish reasonable assurance of compliance with WQ standards following compliance period. DEQ cannot fix a maximum term to the monitoring program in this instance. The minimum period of four years recognizes the two-year term of the compliance period plus an additional two years to provide DEQ reasonable assurance that Project-related impacts will no longer contribute to any violation of water quality standards and that should monitoring indicate an issue effective adaptive management may be employed to remedy, if necessary. Section 2(d)(v) of the Draft Certification provides DEQ with discretion to continue or discontinue monitoring requirements based on demonstrated compliance with water quality standards.

Comment: Western Pond Turtle Monitoring Plan

KRRC has worked with ODFW to develop a Western pond turtle-monitoring plan. KRRC believes the requirements are too open ended and vague and should be tied to specific triggers and performance measures. KRRC provides the following suggested redline revision:

In consultation with ODFW and subject to approval by DEQ, the Licensee shall conduct abundance and overwintering studies. KRRC and ODFW shall coordinate review of the findings of the studies and if potential impacts to the western pond turtle population of the J.C. Boyle reservoir would exceed 75 percent, then the Licensee shall, as DEQ deems warranted, implement appropriate mitigation actions to reduce potential impacts to Western Pond Turtle populations prior to drawdown of JC Boyle Reservoir.”

Reply: DEQ’s authority to prescribe a time schedule for compliance in a 401 certification for the removal of JCB Dam requires DEQ to consider the potential effects of the action on threatened and endangered species, including state-listed species such as the Western Pond Turtle. DEQ has requested assistance from ODFW on protection measures necessary to avoid, minimize, and mitigate for impacts to WPT during reservoir drawdown and restoration.

KRRC is currently implementing a tracking study to estimate WPT abundance and overwintering locations. Until this information is obtained and reviewed, DEQ, in consultation with ODFW, does not feel it is appropriate to prescribe threshold conditions for requiring mitigation should such mitigation be required. If the study suggests mitigation (e.g., translocating affected turtles for the duration of reservoir drawdown) will be required, these actions would likely begin late summer prior to drawdown and conclude in May or June of the drawdown year and not likely extend into subsequent years.

Comment: Remaining Facilities and Operations Plan

The Draft Certification requires KRRC to develop a Remaining Facilities Plan to identify structural portions of the project that will not be removed as proposed in the Full Removal Alternative. The plan requires KRRC to assess remaining elements for potential effects on water quality and propose measures, as appropriate, to reduce these impacts. KRRC proposes the following language to this condition:

“d) Provisions to assure that any ongoing measures will be implemented once title of the facilities and/or responsibility for operations is transferred to another entity, which transfer shall occur not

later than the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project.”

Reply: DEQ recognizes that ultimately KRRC may transfer title of facilities or operational responsibilities to another entity. The following modification language is deemed necessary to provide sufficient assurance of long-term oversight under all reasonably foreseeable conditions:

“d) Provisions deemed necessary by DEQ to assure that any ongoing measures will be implemented once title of the facilities and/or responsibility for operations is transferred to another entity, which transfer shall occur not later than the effective date of surrender of FERC License No. P-14803 for the Lower Klamath Project.”

12. Recommendation for Certification

DEQ has evaluated KRRC’s application for section 401 water quality certification and related supporting documents. DEQ has determined that the proposed action will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, Oregon Administrative Rules, Chapter 340, Division 41 and other appropriate requirements of state law, provided KRRC conducts activities as proposed and implements the section 401 conditions proposed in this document.

Based on the preceding analysis and findings, the Director, or assigned signatory, conditionally approves KRRC’s application for certification for the removal of the Lower Klamath Project, FERC Project No. 14803, pursuant to section 401 of the Federal Clean Water Act and ORS 468B.040 and consistent with the findings of this document.

References

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- Gannett et al. (2010). *Ground-Water Hydrology of the Upper Klamath Basin, Oregon and California*. U.S. Geological Survey. Scientific Investigations Report 2007–5050. Version 1.1, April 2010. Prepared in cooperation with the Oregon Water Resources Department.
- Isaak, D., et al. (2017). *The NorWeST summer stream temperature model and scenarios for the western U.S.: A crowd-sourced database and new geospatial tools foster a user community and predict broad climate warming of rivers and streams*. *Water Resources Research*, 53: 9181-9205. 2017.
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- Klamath River Renewal Corporation. (2017). *Klamath River Renewal Project, Technical Support Document*.
- Oregon Department of Environmental Quality. (2017a). *Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment*. October 2017a.
- Oregon Department of Environmental Quality. (2017b). *Risk-Based Decision Making for the Remediation of Contaminated Sites*. October 2017b.
- Oregon Department of Fish and Wildlife. (2016). *Oregon Conservation Strategy*. Salem, Oregon. <http://www.oregonconservationstrategy.org>. Downloaded 3/14/2018.
- Oregon Health Authority, (2018). *Oregon Harmful Algae Bloom Surveillance (HABS) Program. Public Health Advisory Guidelines. Harmful Algae Blooms in Freshwater Bodies*.
- Oregon Watershed Assessment Manual - DRAFT. (2001). Appendix A – Ecoregion Description.
- PacifiCorp. (2016). *Attachment C. Exhibit M – Lower Klamath Project Description*. Portland, Oregon. September 2016.
- U.S. Department of the Interior, Bureau of Reclamation. (2012). *Detailed Plan for Dam Removal – Klamath River Dams*. Prepared by the Bureau of Reclamation. Denver, Colorado. July 2012.
- U.S. Department of the Interior, California Department of Fish and Wildlife. (2012). *Volume I, Klamath Facilities Removal Final Environmental Impact Statement/Environmental Impact Report*, Dec. 2012.
- U.S. Department of the Interior. (2013). *Klamath Dam Removal Overview Report for the Secretary of the Interior an Assessment of Science and Technical Information*. Version 1.1, March 2013.

Appendix A

Names and addresses of property owners of land that is contiguous to the J.C. Boyle Development in Oregon.

OWNER_NAME	MAPTAXLOT_	SITUS_ADDR	SITUS_CSZ	OWNER_ADDR	OWNER_AD_1	OWNER_AD_2	OWNER_CSZ	FERC_DIST_FT
COLLMAN NANCY	R-4006-00000-00200-000	26360 HWY 66	KENO, OR 97627	453 ALLISON			ASHLAND, OR 97520	0
GLIDDEN ALDEN B & STARLA L	R-3907-03000-00300-000	N/A	N/A	1800 FAIRMOUNT			KLAMATH FALLS, OR 97601	400
GREEN DIAMOND RESOURCE COMPANY	R-3907-03100-00300-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	25
GREEN DIAMOND RESOURCE COMPANY	R-3907-03200-00300-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	25
GREEN DIAMOND RESOURCE COMPANY	R-4007-00600-00700-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	25
GREEN DIAMOND RESOURCE COMPANY	R-3906-00000-00100-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-02900-00100-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-02900-00200-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-02900-00300-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-02900-00400-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-03000-00500-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-03100-00100-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-3907-03100-00200-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-4006-01200-00100-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-4006-01200-00300-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-4007-00600-00100-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
GREEN DIAMOND RESOURCE COMPANY	R-4007-00600-00600-000	N/A	N/A	ATTN: GENERAL COUNSEL	1301 FIFTH AVE STE 2700		SEATTLE, WA 98101-2613	0
J SPEAR RANCH CO	R-4006-00000-00201-000	26221 HWY 66	KENO, OR 97627	P O BOX 257			KLAMATH FALLS, OR 97601	200
KLAMATH COUNTY	R-3907-03000-00200-000	N/A	N/A	305 MAIN ST RM #121			KLAMATH FALLS, OR 97601	400
KLAMATH COUNTY	R-3907-02900-00500-000	N/A	N/A	305 MAIN ST RM #121			KLAMATH FALLS, OR 97601	0

KLAMATH COUNTY	R-3907-02900-00600-000	N/A	N/A	305 MAIN ST RM #121			KLAMATH FALLS, OR 97601	0
KLAMATH COUNTY	R-3907-03200-00200-000	N/A	N/A	305 MAIN ST RM #121			KLAMATH FALLS, OR 97601	0
PACIFIC POWER & LIGHT CO	R-3907-00000-01800-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-00000-00100-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-01200-00400-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-01200-00500-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-01200-00600-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-01200-00700-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4006-01200-00800-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4007-00600-00300-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4007-00600-00400-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4106-00000-00800-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
PACIFIC POWER & LIGHT CO	R-4106-00000-00900-000	N/A	N/A	C/O PROPERTY TAX DEPT.	825 NE MULTNOMAH	SUITE 1900	PORTLAND, OR 97232	0
UNITED STATES	R-4006-00000-00400-000	N/A	N/A					0
UNITED STATES	R-4006-01200-00200-000	N/A	N/A					0
UNITED STATES	R-4007-00600-00200-000	N/A	N/A					0
UNITED STATES	R-4106-00000-00300-000	N/A	N/A					0

Source: KRRC Application Attachment 6 – Contact List of Oregon Property Owners.

Attachment D

Oregon Department of Environmental Quality Land Use Compatibility Statement

April 13, 2018

Land Use Compatibility Statement



What is a land use compatibility statement?

A LUCS is a form developed by DEQ to determine whether a DEQ permit or approval will be consistent with local government comprehensive plans and land use regulations.

Why is a LUCS required?

DEQ and other state agencies with permitting or approval activities that affect land use are required by Oregon law to be consistent with local comprehensive plans and have a process for determining consistency. DEQ activities affecting land use and the requirement for a LUCS may be found in Oregon Administrative Rules (OAR) Chapter 340, Division 18.

When is a LUCS required?

A LUCS is required for nearly all DEQ permits and certain approvals of plans or related activities that affect land use prior to issuance of a DEQ permit or approval. These permits and activities are listed in section 1.D on p. 2 of this form. A single LUCS can be used if more than one DEQ permit or approval is being applied for concurrently.

Permit modifications or renewals also require a LUCS when any of the following applies:

1. Physical expansion on the property or proposed use of additional land;
2. Alterations, expansions, improvements or changes in method or type of disposal at a solid waste disposal site as described in OAR 340-093-0070(4)(b);
3. A significant increase in discharges to water;
4. A relocation of an outfall outside of the source property; or
5. Any physical change or change of operation of an air pollutant source that results in a net significant emission rate increase as defined in OAR 340-200-0020.

How to complete a LUCS:

Step	Who Does It?	What Happens?
1	Applicant	Applicant completes Section 1 of the LUCS and submits it to the appropriate city or county planning office.
2	City or County Planning Office	City or county planning office completes Section 2 of the LUCS to indicate whether the activity or use is compatible with the acknowledged comprehensive plan and land use regulations, attaches written findings supporting the decision of compatibility, and returns the signed and dated LUCS to the applicant.
3	Applicant	Applicant submits the completed LUCS and any supporting information provided by the city or county to DEQ along with the DEQ permit application or approval request.

Where to get help:

For questions about the LUCS process, contact the DEQ staff responsible for processing the permit or approval. DEQ staff may be reached at 1-800-452-4011 (toll-free, inside Oregon) or 503-229-5630. For general questions, please contact DEQ land use staff listed on our [Land Use Compatibility Statement page](#) online.

CULTURAL RESOURCES PROTECTION LAWS: Applicants involved in ground-disturbing activities should be aware of federal and state cultural resources protection laws. ORS 358.920 prohibits the excavation, injury, destruction, or alteration of an archeological site or object or removal of archeological objects from public and private lands without an archeological permit issued by the State Historic Preservation Office. 16 USC 470, Section 106, National Historic Preservation Act of 1966 requires a federal agency, prior to any undertaking, to take into account the effect of the undertaking that is included on or eligible for inclusion in the National Register. For further information, contact the State Historic Preservation Office at 503-378-4168, ext. 232.

Land Use Compatibility Statement

SECTION 1 - TO BE COMPLETED BY APPLICANT			
1A. Applicant Name: Klamath River Renewal Corporation	1B. Project Name: Lower Klamath Project		
Contact Name: Michael Carrier, President	Physical Address: J.C. Boyle Development		
Mailing Address: 423 Washington Street, 3rd Floor	City, State, Zip: Klamath County, Oregon		
City, State, Zip: San Francisco, California 94111	Tax Lot #: R-4007-00600-00300-000		
Telephone: 415-820-4422	Township: T40S Range: R7E Section: S6		
Tax Account #:	Latitude: 42° 7'20.77"N		
	Longitude: 122° 2'53.78"W		
1C. Describe the project, include the type of development, business, or facility and services or products provided (attach additional information if necessary): <p>The project includes the proposed removal of the J.C. Boyle hydroelectric development ("J.C. Boyle"), which is located in Klamath County, Oregon, pursuant to the Klamath Hydroelectric Settlement Agreement (KHSA) as amended. PacifiCorp currently owns and operates the J.C. Boyle development pursuant to a license issued by the Federal Energy Regulatory Commission ("FERC"). PacifiCorp also currently owns three (3) other hydroelectric developments that are located in California and are licensed by FERC under the same project license (FERC Project No. 2082). As part of the amended KHSA, KRRC will decommission the J.C. Boyle dam in Oregon, as well as three California hydroelectric projects, following transfer of the license for those developments from PacifiCorp to KRRC.</p> <p>In 2012, the U.S. Department of the Interior prepared a Detailed Plan for Dam Removal ("Detailed Plan") (see attachment), which describes the dam deconstruction activities. http://www.klamathrenewal.org/wp-content/uploads/2016/08/A5-Public-Klamath_DetailedPlan2011-Part-1.pdf.</p>			
1D. Check the type of DEQ permit(s) or approval(s) being applied for at this time. <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Air Quality Notice of Construction <input type="checkbox"/> Air Contaminant Discharge Permit (<i>excludes portable facility permits</i>) <input type="checkbox"/> Air Quality Title V Permit <input type="checkbox"/> Air Quality Indirect Source Permit <input type="checkbox"/> Parking/Traffic Circulation Plan <input type="checkbox"/> Solid Waste Land Disposal Site Permit <input type="checkbox"/> Solid Waste Treatment Facility Permit <input type="checkbox"/> Solid Waste Composting Facility Permit (includes Anaerobic Digester) <input type="checkbox"/> Conversion Technology Facility Permit <input type="checkbox"/> Solid Waste Letter Authorization Permit <input type="checkbox"/> Solid Waste Material Recovery Facility Permit <input type="checkbox"/> Solid Waste Energy Recovery Facility Permit <input type="checkbox"/> Solid Waste Transfer Station Permit <input type="checkbox"/> Waste Tire Storage Site Permit </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Pollution Control Bond Request <input type="checkbox"/> Hazardous Waste Treatment, Storage, or Disposal Permit <input type="checkbox"/> Clean Water State Revolving Fund Loan Request <input type="checkbox"/> Wastewater/Sewer Construction Plan/Specifications (<i>includes review of plan changes that require use of new land</i>) <input type="checkbox"/> Water Quality NPDES Individual Permit <input type="checkbox"/> Water Quality WPCF Individual Permit (<i>for onsite construction-installation permits use the DEQ Onsite LUCS form</i>) <input type="checkbox"/> Water Quality NPDES Stormwater General Permit (1200-A, 1200-C, 1200-CA, 1200-COLS, and 1200-Z) <input type="checkbox"/> Water Quality General Permit (<i>all general permits, except 600, 700-PM, 1700-A, and 1700-B when they are mobile.</i>) <input checked="" type="checkbox"/> Water Quality 401 Certification for federal permit or license </td> </tr> </table>		<input type="checkbox"/> Air Quality Notice of Construction <input type="checkbox"/> Air Contaminant Discharge Permit (<i>excludes portable facility permits</i>) <input type="checkbox"/> Air Quality Title V Permit <input type="checkbox"/> Air Quality Indirect Source Permit <input type="checkbox"/> Parking/Traffic Circulation Plan <input type="checkbox"/> Solid Waste Land Disposal Site Permit <input type="checkbox"/> Solid Waste Treatment Facility Permit <input type="checkbox"/> Solid Waste Composting Facility Permit (includes Anaerobic Digester) <input type="checkbox"/> Conversion Technology Facility Permit <input type="checkbox"/> Solid Waste Letter Authorization Permit <input type="checkbox"/> Solid Waste Material Recovery Facility Permit <input type="checkbox"/> Solid Waste Energy Recovery Facility Permit <input type="checkbox"/> Solid Waste Transfer Station Permit <input type="checkbox"/> Waste Tire Storage Site Permit	<input type="checkbox"/> Pollution Control Bond Request <input type="checkbox"/> Hazardous Waste Treatment, Storage, or Disposal Permit <input type="checkbox"/> Clean Water State Revolving Fund Loan Request <input type="checkbox"/> Wastewater/Sewer Construction Plan/Specifications (<i>includes review of plan changes that require use of new land</i>) <input type="checkbox"/> Water Quality NPDES Individual Permit <input type="checkbox"/> Water Quality WPCF Individual Permit (<i>for onsite construction-installation permits use the DEQ Onsite LUCS form</i>) <input type="checkbox"/> Water Quality NPDES Stormwater General Permit (1200-A, 1200-C, 1200-CA, 1200-COLS, and 1200-Z) <input type="checkbox"/> Water Quality General Permit (<i>all general permits, except 600, 700-PM, 1700-A, and 1700-B when they are mobile.</i>) <input checked="" type="checkbox"/> Water Quality 401 Certification for federal permit or license
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1E. This application is for: <input type="checkbox"/> Permit Renewal <input checked="" type="checkbox"/> New Permit <input type="checkbox"/> Permit Modification <input type="checkbox"/> Other:			
SECTION 2 - TO BE COMPLETED BY CITY OR COUNTY PLANNING OFFICIAL			
Instructions: Written findings of fact for all local decisions are required; written findings from previous actions are acceptable. For uses allowed outright by the acknowledged comprehensive plan, DEQ will accept written findings in the form of a reference to the specific plan policies, criteria, or standards that were relied upon in rendering the decision with an indication of why the decision is justified based on the plan policies, criteria, or standards.			
2A. The project proposal is located: <input type="checkbox"/> Inside city limits <input type="checkbox"/> Inside UGB <input checked="" type="checkbox"/> Outside UGB			
2B. Name of the city or county that has land use jurisdiction (the legal entity responsible for land use decisions for the subject property or land use): <u>Klamath County</u>			

Land Use Compatibility Statement

SECTION 2 - TO BE COMPLETED BY CITY OR COUNTY PLANNING OFFICIAL		
Applicant Name:	Project Name:	
2C. Is the activity allowed under Measure 49 (2007)? <input checked="" type="checkbox"/> No, Measure 49 is not applicable <input type="checkbox"/> Yes; if yes, then check one:		
<input type="checkbox"/> Express; approved by DLCD order #:		
<input type="checkbox"/> Conditional; approved by DLCD order #:		
<input type="checkbox"/> Vested; approved by local government decision or court judgment docket or order #:		
2D. Is the activity a composting facility? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes; Senate Bill 462 (2013) notification requirements have been met.		
2E. Is the activity or use compatible with your acknowledged comprehensive plan as required by OAR 660-031? <i>Please complete this form to address the activity or use for which the applicant is seeking approval (see 1.C on the previous page). If the activity or use is to occur in multiple phases, please ensure that your approval addresses the phases described in 1.C. For example, if the applicant's project is described in 1.C as a subdivision and the LUCS indicates that only clearing and grading are allowed outright but does not indicate whether the subdivision is approved, DEQ will delay permit issuance until approval for the subdivision is obtained from the local planning official.</i>		
<input checked="" type="checkbox"/> The activity or use is specifically exempt by the acknowledged comprehensive plan; explain: <i>As the project is being reviewed by FERC, the Federal Power Act preempts local regulation.</i>		
<input type="checkbox"/> Yes, the activity or use is pre-existing nonconforming use allowed outright by (provide reference for local ordinance):		
<input type="checkbox"/> Yes, the activity or use is allowed outright by (provide reference for local ordinance):		
<input type="checkbox"/> Yes, the activity or use received preliminary approval that includes requirements to fully comply with local requirements; findings are attached.		
<input type="checkbox"/> Yes, the activity or use is allowed; findings are attached.		
<input type="checkbox"/> No, see 2.C above, activity or use allowed under Measure 49; findings are attached.		
<input type="checkbox"/> No, (complete below or attach findings for noncompliance and identify requirements the applicant must comply with before compatibility can be determined): Relevant specific plan policies, criteria, or standards: Provide the reasons for the decision:		
Additional comments (attach additional information as needed):		
Planning Official Signature: <i>Mark Gallagher</i>		Title: <i>Planning Director</i>
Print Name: <i>Mark Gallagher</i>	Telephone #: <i>541-851-3668</i>	Date: <i>4-13-2018</i>
If necessary, depending upon city/county agreement on jurisdiction outside city limits but within UGB:		
Planning Official Signature:		Title:
Print Name:	Telephone #:	Date:

Oregon Department of Environmental
Quality, Findings in Support of Land Use
Compatibility Statement

KLAMATH RIVER RENEWAL CORPORATION
FINDINGS IN SUPPORT OF LAND USE COMPATIBILITY
FOR REMOVAL OF JOHN C. BOYLE DAM

I. INTRODUCTION.

The Klamath River Renewal Corporation (“KRRC”) seeks to remove the John C. Boyle Dam (the “Dam”) and its associated facilities (the “Project”). The Dam is located in Klamath County, Oregon (“County”) and is one of four dams that together comprise the Lower Klamath Project (Federal Energy Regulatory Commission (“FERC”) No. 14803). PacifiCorp is the current license holder of the Lower Klamath Project. On September 23, 2016, in accordance with the Amended Klamath Hydroelectric Settlement Agreement, PacifiCorp and KRRC filed with FERC a “Joint Application for Approval of License Amendment and License Transfer,” which joint application sought a separate license for the Lower Klamath Project, including the Dam, and also to transfer said separate licenses from PacifiCorp to KRRC. Concurrently, KRRC filed an “Application for Surrender of License for Major Project and Removal of Project Works” (“Surrender Application”), which Surrender Application, once FERC approves it, will authorize KRRC to remove the Dam.

FERC cannot approve the Surrender Application unless KRRC complies with Section 401 of the Clean Water Act (“CWA”), among other regulations. Section 401 of the CWA requires an application for a federal license or permit to conduct any activity that may result in any discharge into navigable waters to provide the licensing or permitting agency with a certification from the state in which the discharge will originate that any such discharge will comply with the applicable provisions of the CWA. With respect to the Dam, the Oregon Department of Environmental Quality (“DEQ”) is the agency that grants this certification. DEQ’s Oregon Administrative Rules (“OAR”), specifically OAR 340-048-0020, establish the requirements for a DEQ certification in accordance with Section 401 of the CWA. Among these requirements is that the applicant, here KRRC, submit with an application for certification “[a]n exhibit that ... includes land use compatibility findings for the activity prepared by the local planning jurisdiction.” OAR 340-048-0020(2)(i)(A). The ordinary vehicle to obtain land use compatibility findings from the Klamath County Planning Department is a “Land Use Compatibility Statement” (“LUCS”). However, the County’s planning department will not prepare a LUCS in this case because the Federal Power Act preempts local land use regulation. Because the County does not believe its land use regulations apply to the Project, the County will not provide a LUCS.

A. Purpose of Analysis.

The purpose of this memorandum is for KRRC to act in lieu of the County to provide a LUCS analysis pursuant to OAR 340-048-0020(2)(i) which demonstrates that the Project is compatible with the applicable comprehensive plan and land use regulations of the County.

B. Scope of Analysis.

This memorandum assesses the Project's compliance with the Klamath County Land Development Code ("KCLDC"), which implements the acknowledged Klamath County Comprehensive Plan ("KCCP") and therefore is the authoritative source of land use regulation in the County. KCLDC 10.020. Furthermore, this memorandum will address only those provisions of the KCLDC/KCCP that KRRC determines apply to the Project.

C. Project Description.

KRRC's will remove the Dam through a process comprised of drawdown of the Dam's Reservoir ("Drawdown") and removal of the physical Dam structure and associated facilities. These activities will occur in a sequential manner subject to compliance with all applicable regulatory entitlements including FERC authorizations.

II. LAND USE ANALYSIS.

This section analyzes the Project's compliance with the applicable land use regulations of the KCLDC and, where applicable, the KCCP.

A. Dam Removal.

Removal of the Dam structure will implicate the KCLDC with respect to KRRC's: (1) use, maintenance, and improvement of roads and other transportation facilities for construction access; (2) use of land for temporary construction staging areas; (3) development of and use of disposal sites for material from the deconstruction of the dam structure and associated facilities; (4) vegetation removal; (5) and demolition of various structural improvements. For purposes of this analysis, it is noted that the Dam structure and related facilities proposed for removal, together with temporary staging and material disposal areas are located within the Forestry (F) zone designation. While portions of the reservoir proposed for draw down are located in the Forestry/Range (FR) zone designation, the drawdown action is not a regulated activity under KCLDC.

1. Construction Access.

KRRC will use multiple existing roads and bridges for construction access and hauling and transportation of material.

a. Road Maintenance. The Project contemplates routine road maintenance, including pavement rehabilitation and regrading of uneven or rutted areas, on: the existing access road from OR 66 to JC Boyle Dam, JC Boyle Powerhouse Road, Topsy Grade Road, Power Canal Access Road, and Disposal Access Road. The access road from OR 66 to JC Boyle Dam and the Disposal Access Road are private roads. The County owns Topsy Grade Road. The Bureau of Land Management owns the majority of JC Boyle Powerhouse Road and Power Canal Access Road, and PacifiCorp owns a short length of each.

KCLDC 50.040.A. permits outright in all County zones "[n]ormal ... maintenance, repair, and preservation activities of existing transportation facilities." KRRC plans for the above roads

pavement rehabilitation, regrading of uneven or rutted areas, and other routine maintenance, all of which KCLDC 50.040.A would permit outright. Therefore, the Project's road maintenance needs comply with the KCLDC.

b. Road Improvement. The Project contemplates widening the access road from OR 66 to JC Boyle Dam and the Disposal Access Road, both of which are private roads. KCLDC 50.040.B conditionally permits road widening and construction as an "Extensive Impact Service and Utility" use in every County zone. Therefore, the Project's road widening needs comply with the KCLDC.

(i) Conditional Use Criteria. Road widening in the Forestry (F) zone must comply with the conditional use review criteria that KCLDC 44.030 sets forth. KRRC must demonstrate that the road widening: (1) complies with the policies of the KCCP;¹ (2) is in conformance with all other required standards and criteria of the KCLDC;² and (3) is not of a location, size, or design, and does not have operating characteristics, that will have a significant adverse impact on the livability, value, or appropriate development of abutting properties and the surrounding area, including adverse impacts to the transportation system in accordance with KCLDC 71.200.³ Upon a demonstration of compliance with those criteria, the conditional use permit will be granted consistent with the plan and implementing ordinances. If the County determined that any or all of the Project's road widening needs did not satisfy the above criteria, absent modification or conditional implementation, KCLDC 44.030.D would allow the County to impose conditions of approval to "ensure compliance" with the KCCP and/or KCLDC.

For the above reasons, the Project's road maintenance and improvement needs are allowed outright and subject to condition use criteria, respectfully, and therefore are compatible with the KCLDC.

2. Dam Alteration and Temporary Staging Areas. The Forestry (F) zoning designation applies to the Dam structure/powerhouse and all associated staging areas.

The Forestry (F) zone permits outright "[p]hysical alterations to the land auxiliary to forest practices," including but not limited to landfills, dams, and reservoirs. KCLDC 55.015.C.⁴ Specifically, "alterations" to dams and reservoirs, which is most reasonably read to include deconstruction, is allowed as of right under this zoning designation. Therefore, a proper

¹ The KCCP contains many policies. Most such policies are aspirational and/or are implemented by the KCLDC. Therefore, most of the KCCP's policies are not independent obligations with which development must comply. To the extent a KCCP policy creates an affirmative (non-aspirational) obligation independent of the KCLDC with which a conditionally permitted development must comply, the Project must either comply with said policy or amend the KCCP in accordance with the procedures set forth in KCLDC Article 49. Under either approach, compatibility of such development with County land use regulations is assured.

² This analysis addresses all applicable standards and criteria of the KCLDC.

³ KCLDC 71.200 requires, under circumstances, that an applicant for a development permit submit a "Traffic Impact Study" to study the effect of the proposed development on transportation infrastructure.

⁴ Pursuant to KCLDC 55.025.T, the establishment of new reservoirs and water impoundments requires conditional use authorization.

interpretation of KCLDC 55.015.C. authorizes dam removal outright, together with necessary construction staging areas required for this purpose. Further, the Forestry (F) zone permits outright “[u]ses to ... provide for wildlife and fisheries resources,” which also could serve as an independent basis for code compliance.

3. Disposal Sites.

KRRC will develop two disposal sites for the Project by clearing vegetation and stripping and stockpiling topsoil. KRRC will bury earth materials generated from removal of the Dam on-site in a portion of the original borrow pit (“Borrow Pit Site”) on the Dam’s right abutment. KRRC will grade the Borrow Pit Site as a hill (max height 35 feet). KRRC will place within a 100-foot-deep scour hole (“Scour Hole Site”) concrete rubble from the Dam and its flume, forebay, and powerhouse. KRRC will backfill the Scour Hole Site. KRRC will dispose of all material unsuitable for disposal at the Borrow Pit Site and the Scour Hole Site at an approved landfill.

As noted, both disposal sites are located in the Forestry (F) zone. Under this designation, physical alterations auxiliary to forest practices associated with dams and landfills are permitted outright. KCLDC 56.015(C). The most reasonable interpretation of these provisions is that disposal sites associated with dam removal or “alteration” is allowed outright as an accessory activity.

4. Property Development Standards. Development in the Forestry (F) zone is also subject to limited property development standards, including:

- **Minimum Lot Size.** The minimum lot size for development in the Forestry (F) zone is 80 acres. KRRC will undertake all Project’s activities on lots larger than 80 acres.
- **Residential Density.** The Project does not constitute residential development. Therefore, these standards do not apply.
- **Lot Size and Shape.** These standards apply only to lots within subdivisions or partitions and are therefore not applicable to the Project.
- **Building Heights and Setbacks.** The proposed Project will not include buildings or structures. Therefore, these standards do not apply.
- **Fences, Walls, and Screening.** These standards do not apply to the proposed Project.
- **Landscaping.** These standards apply only to limited uses and activities and do not apply to the proposed Project. KCLDC 65.020.
- **Signs.** Signs that “cannot be viewed” from public streets are exempt from sign regulation. KCLDC 66.020.E, which would include any signage at the Project as proposed.
- **Parking.** There are no established parking standards for activities associated with the Project. Therefore, the County Planning Director may establish parking requirements, if any, for the Project activities. KCLDC 68.020.E.

- Access. Existing public and private roads provide access to the Project site. KRRC will improve and perform maintenance on these roads but it will not create new lots or parcels requiring access, nor eliminate existing access points. Access to or from a state highway is subject to Oregon Department of Transportation. KCLDC 71.020.C.

5. Vegetation/Tree Removal.

The Project contemplates the removal of trees to facilitate road widening and the removal of vegetation to prepare disposal sites and construction staging areas. Such activities are not subject to regulation under the KCLDC.

6. Facilities Removal.

The Project contemplates demolition of certain private transportation facilities. The Project also contemplates removal of recreational facilities in and around the Dam's reservoir. These activities are not subject to regulation under the KCLDC

a. Removal of Transportation Facilities.

The Project contemplates demolition of the Timber Bridge, the Right Abutment Access Road, the Penstock Access Roads, the Disposal Access Road, the Pioneer Park Access Road, and the Topsy Campground Roads. Demolition and/or removal of transportation facilities is not subject to regulation under the KCLDC except in conjunction with new land construction.

b. Removal of Recreational Facilities.

The Project contemplates the removal of recreational facilities in the Dam's reservoir, including facilities at Pioneer Park and Topsy Campground. KRRC will remove at Pioneer Park picnic tables, grills, portable toilets, a trash receptacle, a dumpster, and informational signs. KRRC will remove at Topsy Campground a boat launch, floating dock, and fishing pier.

Oregon Statewide Planning Goal 8 concerns recreation needs. In accordance with Goal 8, the KCCP establishes various aspirational policies that promote recreation needs within the County. However, the acknowledged status of the plan and implementing ordinances precludes any Goal compliance obligations, and such aspirational plan policies do not serve as standards and/or criteria with which the Project must comply for purposes of discretionary land use approvals. Rather, the KCLDC is the County's instrument for implementing the acknowledged in lieu of Goal compliance, and KCCP. KCLDC 10.020. No provision of the KCLDC prohibits or otherwise regulates KRRC from removing the facilities as discussed above.

III. CONCLUSION.

For the above reasons, the Project's various components are consistent and otherwise compatible with the applicable County comprehensive plan providers and implementing land use regulations.

Attachment E

Klamath County, Oregon, Memorandum of Understanding

March 2019

**MEMORANDUM OF UNDERSTANDING BETWEEN KLAMATH
COUNTY, OREGON AND THE KLAMATH RIVER RENEWAL
CORPORATION**

This Memorandum of Understanding (“**MOU**”) is made by and between KLAMATH COUNTY, Oregon (“**County**”) and KLAMATH RIVER RENEWAL CORPORATION (“**KRRC**”) as of this 26 day of March, 2019 (“**Effective Date**”). This MOU is made in reference to the following facts. The County and KRRC are each individually referred to herein as a “**Party**” and collectively referred to as the “**Parties**.”

RECITALS

WHEREAS, KRRC is a private, independent nonprofit 501(c)(3) organization formed by signatories of the amended Klamath Hydroelectric Settlement Agreement (“**KHSA**”). The signatories of the KHSA, including the States of California and Oregon, Tribal nations, PacifiCorp, irrigators, and several conservation and fishing groups, appointed KRRC to take ownership and oversee removal of four hydroelectric dams on the Klamath River.

WHEREAS, on September 23, 2016, PacifiCorp, licensee for the Klamath Hydroelectric Project No. 2082, and KRRC, filed an application with the Federal Energy Regulatory Commission (“**FERC**”) to amend and partially transfer the Klamath Project’s FERC license from PacifiCorp to KRRC. This application is now pending before FERC as the *Joint Application for License Transfer and License Amendment*; FERC Project Nos. 2082-062 and 14803-000, (“**License Transfer**”). Upon KRRC’s acceptance of this license, KRRC will become the licensee of the Lower Klamath Project No. 14803, which is comprised of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate hydroelectric developments.

WHEREAS, on September 23, 2016, in furtherance of its obligations under the KHSA, KRRC filed an application with FERC to surrender the license for FERC Project No. 14803.. This application is now pending before FERC as the *Application for Surrender of License for Major Project and Removal of Project Works*; FERC Project Nos. 2082-063 and 14803-001, (“**License Surrender**”). The License Surrender application seeks FERC’s approval to remove the four hydroelectric developments, remediate and restore the reservoir sites; avoid or minimize adverse impacts downstream, and achieve a free-flowing condition and volitional fish passage in the Klamath River in the reaches currently occupied by FERC Project No. 14803, all as more particularly described in the KHSA (“collectively, the “**Project**”).

WHEREAS, in support of the License Surrender application, on June 28, 2018, KRRC filed with FERC its comprehensive plan to implement the Project. This comprehensive plan, as will be amended from time to time pending FERC’s review thereof, is referred to herein as the “**Definite Plan**”).

WHEREAS, the County’s interests are directly affected by the outcome of the above-referenced FERC proceedings and the County is a party to these FERC proceedings.

WHEREAS, the County’s directly affected interests include, but are not limited to, the regulation of activities described in the Definite Plan that fall under the purview of the Klamath County Comprehensive Plan and the following provisions of the Klamath County

Code: KCLDC Chapter 70, Article 71 (vehicular access) (the “**Referenced Provisions of the Klamath County Code**”).

WHEREAS, the Federal Power Act, 16 USC §791 *et seq.*, vests FERC with broad power to regulate hydropower facilities, and state and local regulation of matters to be decided by FERC with respect to such hydropower facilities is preempted by operation of the Supremacy Clause of the U.S. Constitution.

WHEREAS, the KRRC has developed recommendations to FERC regarding the Referenced Provisions of the Klamath County Code that cover activities in the Definite Plan. These recommendations are set forth in Exhibit A, attached hereto and incorporated herein by this reference (“**Recommended Terms and Conditions**”).

WHEREAS, the Parties now desire to submit the Recommended Terms and Conditions to FERC as joint recommendations pertaining to the Referenced Provisions of the Klamath County Code and the implementation of certain portions of the Definite Plan.

NOW THEREFORE, in consideration of the foregoing the Parties agree as follows:

1. Recommended Terms and Conditions: The Parties hereby jointly recommend and request that FERC include the Recommended Terms and Conditions as enforceable terms and conditions of the Final Order in the License Surrender proceeding. The term “**Final Order**” shall mean an order issued by FERC that constitutes the full and final disposition of the License Surrender proceeding and is subject to judicial review pursuant to 16 U.S.C § 8251 (b).

2. Land Use Consistency: The Parties have reviewed the Definite Plan for purposes of determining its consistency with the Klamath County Comprehensive Plan and the Klamath County Land Development Code. The Parties joint determination of land use consistency is set for in Exhibit C, attached hereto and incorporated herein by this reference (“**Land Use Consistency Determination**”).

3. Term: The term of this MOU shall commence as of the Effective Date and shall end upon the date that is the earlier of the following dates to occur: (a) the date that FERC shall issue the Final Order, or, (b) the date that a Party shall terminate this MOU in accordance with Section 8 (“Termination”).

4. FERC Approval: KRRC’s obligation to implement the Recommended Terms and Conditions is contingent upon FERC’s issuance of a Final Order that substantially conforms with the Definite Plan and the Recommended Terms and Conditions.

5. Good Faith: The Parties agree to collaboratively and in good faith recommend and support the Recommended Terms and Conditions in this MOU and shall take no action before FERC, or in any other regulatory or public forum, that is contrary to, conflicts with, hinders, changes, modifies or impairs the implementation of the Recommended Terms and Conditions in connection with the relevant portion of the Definite Plan.

6. Reservation of Rights: Each Party fully reserves its right to support, advance, contest, advocate, protest, prosecute or otherwise pursue its interests related to FERC Project No. 14803, subject to the limited exceptions of Sections 5 and 7

7. Right to Appeal:

7.1 Within sixty (60) days of the date of the Final Order, KRRC shall advise the County in writing of whether it intends to accept the Final Order or pursue an appeal thereof. Thereafter:

(a) If KRRC elects to accept the Final Order and the Final Order does not materially conflict with any one or more of the Recommended Terms and Conditions, then neither Party shall take any action to directly or indirectly challenge, protest, appeal, delay, obstruct, impair or in any way interfere with the Final Order or the implementation of the Definite Plan.

(b) If the Final Order does not materially conflict with any one or more of the Recommended Terms and Conditions, then the KRRC or the County shall have the right to appeal the Final Order, but in the event of any such appeals (i) neither Party shall appeal any one or more of the Recommended Terms and Conditions, and (ii) the County will not oppose any effort on the part of KRRC to seek a stay in the implementation of the Final Order pending full and final resolution of such appeals.

(c) If the Final Order materially conflicts with any one or more of the Recommended Terms and Conditions, then either Party may appeal the Final Order. Except and only as otherwise provided in Section 7(b)(ii) above, any such appeal shall be strictly limited to an appeal of such material conflict of the Final Order with the Recommended Terms and Conditions.

7.2 The obligations of the Parties set forth in this Section 7 ("Right to Appeal") shall be specifically enforceable by any court of law with jurisdiction over the Parties. Except in the event of a termination of this MOU pursuant to Section 8.2, the obligations of the Parties set forth in this Section 7 ("Right to Appeal") shall survive the expiration or termination of this MOU for such period of time as may be reasonably necessary in order to give full force and effect to the intent of the Parties as set forth herein.

8. Termination.

8.1 If a Party fails to comply with any of its obligations under this MOU ("Default"), the other Party may give written notice of such Default to the defaulting Party. The defaulting Party shall have thirty (30) days from receipt of such notice of Default to cure such Default (provided however, if such Default is not capable of cure within thirty (30) days, the defaulting Party shall commence such cure within such thirty (30) day period and shall continuously and diligently complete such cure as soon as is reasonably possible thereafter). If such Default is not cured to the satisfaction of the non-defaulting Party within the applicable cure period, the non-defaulting Party may terminate this MOU by written notice to the defaulting Party.

8.2 KRRC may terminate this MOU by written notice to the County if KRRC elects to reject and does not accept (a) the License Transfer, or (b) the License Surrender.

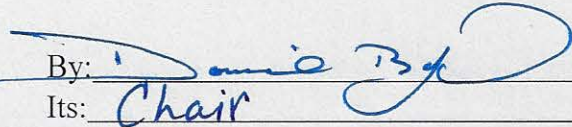
9. Miscellaneous. This MOU contains the entire agreement between the Parties with respect to the subject matter hereof and supersedes any and all other prior

understandings, communications and agreements, oral or written, between the Parties with respect to the subject matter of this MOU. This MOU may not be amended or modified except by a written agreement signed by the Parties. If any terms or conditions of this MOU are deemed to be invalid or unenforceable, the remainder of this MOU shall not be affected thereby. This MOU may be executed in multiple counterparts, each of which shall be deemed to be an original agreement, and all of which shall constitute one agreement. This MOU shall be governed the laws of the United State of America and, as applicable, the laws of the state of Oregon.

THIS MEMORANDUM OF UNDERSTANDING is made by and between the undersigned Parties as of the Effective Date.

KLAMATH COUNTY, OREGON

**KLAMATH RIVER RENEWAL
CORPORATION.**

By: 
Its: Chair

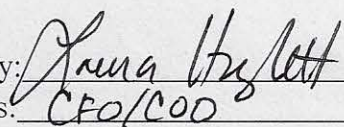
By: 
Its: CEO/COO

EXHIBIT A

Recommended Terms and Conditions

Recommended Condition 1. KRRC shall implement the Traffic Management Plan.

This condition is intended to be consistent with the requirements of KCLDC Chapter 70, Article 71: Vehicular and Non-Vehicular Access and Circulation.

Appendix O2 of the Definite Plan (June 2018) sets forth the draft Traffic Management Plan (TMP) for the implementation of the Definite Plan. The draft TMP is attached hereto as Exhibit B to this MOU. On or before [date], KRRC will, in consultation with the County, review and revise this TMP as appropriate to satisfy the County's traffic management requirements. This plan will establish Best Management Practices, as the Project does not require improvements to County roads. KRRC shall allow a minimum of 30 days for the County to comment and to make recommendations prior to filing the final TMP with the Federal Energy Regulatory Commission (FERC). KRRC will include with the final TMP documentation of consultation and copies of comments and recommendations provided by the County on the final TMP, and specific descriptions of how the County's comments are accommodated by the final TMP. If KRRC does not accept a County recommendation, the filing with FERC will include KRRC's reasons, based on Project-specific information.

In revising the draft TMP, KRRC will address the following elements.

1. **Topsy Grade Road Culvert at Unnamed Creek.** KRRC will monitor this culvert during and following drawdown to determine if improvements or repairs are needed. If erosion of reservoir sediments affects this culvert, KRRC will install riprap armor on the downstream face of the embankment and remove sediment and debris from the culverts, if needed, to protect the road embankment.

2. **Construction Traffic.** As specified in the TMP, KRRC shall implement measures to maintain efficient and safe movement of vehicles through the construction zone in compliance with any applicable County standards, and to repair wear or damage that the Project causes to County-owned infrastructure. The KRRC will leave such infrastructure in the same or better condition upon project completion, understanding that the KRRC will not repair wear or damage caused by other uses. The KRRC's measures shall include:

(a) Prior to construction:

(i) KRRC shall cause an investigation of public roads potentially impacted by Project construction traffic to be conducted by an appropriately licensed civil or geotechnical engineer. The engineer shall prepare and provide the County with a summary report of existing conditions of such public roads and identify any repairs that are needed to maintain the efficient and safe movement of Project construction traffic.

(ii) A traffic study of potential impacts to public roads caused by Project

construction traffic shall be prepared by KRRC that identifies the number of trucks, weight of trucks, and volume of materials being removed. This study shall use industry standards such as Equivalent Single Axle Loads (ESALs) to calculate the amount of usage of the road. KRRC shall compute the degradation of the roads caused by Project construction traffic based on the ESALs and identify the tail end repairs (and the cost of such repairs) to "buy back" the ESALs' uses (i.e., the Project shall be responsible for the amount of ESAL's used minus the normal ESALs that the road would have seen during the same period of time). Traffic counts during construction shall be performed by the County to verify the number of trucks and weight of trucks utilizing the road.

(iii) Traffic control drawings of public roads that may be impacted by Project construction traffic shall be developed by KRRC and submitted to the appropriate roadway jurisdictions (Public or County Road = County; Highway = ODOT) for review.

(iv) Erosion control drawings of public roads that may be impacted by Project construction traffic shall be prepared by KRRC and submitted to the County for review. Tracking of mud and debris onto the roads by Project construction traffic shall be monitored to ensure that sediment laden runoff does not leave the site or get into the existing drainage systems.

(v) Any proposals for Project construction within the public right of way shall be submitted by KRRC to the County for review. The County may require driveway and encroachment permits prior to such work occurring.

(b) During construction:

(i) The condition of the existing road(s) that may be impacted by Project construction traffic shall be inspected bi-annually by KRRC (spring and fall) and reported to Public Works. Dust abatement measures (e.g., road watering) for Project construction traffic on Topsy Grade Road shall be implemented by KRRC in compliance with appropriate roadway jurisdiction standards.

(ii) KRRC shall provide roadway maintenance of Topsy Grade Road (winter and summer) as needed to mitigate impacts caused by Project construction traffic. Maintenance activities may include adding aggregate base, vegetation management, noxious weed control, replacing signs, dust control, pot hole repair, snow plowing, and drainage/culvert repairs.

(iii) KRRC shall follow weight restrictions on Project construction traffic that may be imposed by the Board of Commissioners as provided by ORS 810.030. Weight restricted bridges are designated at <https://kcgis.maps.arcgis.com/apps/View/index.html?appid=7c2677e566a34912b54dedefb6f116d7>

(iv) KRRC acknowledges that it is preferred by the County that loaded trucks utilize OR 66 (not Keno Worden Road) for access to the site from Highway 97. Additional conditions may need to be implemented during construction for Keno Worden Road if

Project construction traffic causes congestion and/or damage to the road.

(v) KRRC shall provide construction area signs to provide for advance warnings to trucks and other road users to improve safety.

(vi) KRRC shall provide measures to ensure compliance with any applicable County requirements or guidelines for movement of extralegal loads.

(c) After construction:

(i) KRRC shall make a payment to the County to perform tail end repairs, based on construction traffic projections as adjusted (i.e., increased or refunded) to reflect actual use pursuant to (a)(ii), and as further adjusted to reflect any repairs KRRC has completed pursuant to (b)(ii). A final road condition report completed by KRRC pursuant to (b)(i), along with traffic counts performed by the County pursuant to (a)(ii), shall be used to determine the need for tail end repairs.

EXHIBIT B

Appendix O2 of the Definite Plan

EXHIBIT C

LAND USE CONSISTENCY DETERMINATION

INTRODUCTION.

The Klamath River Renewal Corporation (“KRRC”) seeks to remove the John C. Boyle Dam (the “Dam”) and its associated facilities (the “Project”). The Dam is located in Klamath County, Oregon (“County”) and is one of four dams that together comprise the Lower Klamath Project (Federal Energy Regulatory Commission (“FERC”) No. 14803). PacifiCorp is the current license holder of the Lower Klamath Project. On September 23, 2016, in accordance with the Amended Klamath Hydroelectric Settlement Agreement, PacifiCorp and KRRC filed with FERC a “Joint Application for Approval of License Amendment and License Transfer,” which joint application sought a separate license for the Lower Klamath Project, including the Dam, and also to transfer said separate licenses from PacifiCorp to KRRC. Concurrently, KRRC filed an “Application for Surrender of License for Major Project and Removal of Project Works” (“Surrender Application”), which Surrender Application, once FERC approves it, will authorize KRRC to remove the Dam.

Purpose of Analysis.

The purpose of this Land Use Consistency Determination is to review the Klamath County Comprehensive Plan (“KCCP”) and the Klamath County Land Development Code (“KCLDC”), and to determine the Project’s consistency with the applicable elements of the KCCP and the applicable implementing land use regulations set forth in the KCLD.

Consistency Determination.

For the reasons set forth below, the Project’s various components are consistent with the applicable elements of the KCCP and the applicable implementing land use regulations set forth in the KCLDC.

Project Description.

KRRC will remove the Dam through a process comprised of drawdown of the Dam’s Reservoir (“Drawdown”) and removal of the physical Dam structure and associated facilities. These activities will occur in a sequential manner subject to compliance with all applicable regulatory entitlements, including FERC authorizations and the Clean Water Act Section 401 Certification issued by the State of Oregon Department of Environmental Quality on September 7, 2018.

The full Project description is set forth Section 1.2 of the Definite Plan, which is incorporated herein by this reference.

LAND USE ANALYSIS.

This section analyzes the Project's compliance with the applicable land use regulations of the KCLDC and, where applicable, the KCCP.

Dam Removal.

Removal of the Dam structure will implicate the KCLDC with respect to KRRC's: (1) use, maintenance, and improvement of roads and other transportation facilities for construction access; (2) use of land for temporary construction staging areas; (3) development of and use of disposal sites for material from the deconstruction of the dam structure and associated facilities; (4) vegetation removal; (5) and demolition of various structural improvements. For purposes of this analysis, it is noted that the Dam structure and related facilities proposed for removal, together with temporary staging and material disposal areas are located within the Forestry (F) zone designation. While portions of the reservoir proposed for drawdown are located in the Forestry/Range (FR) zone designation, the drawdown action is not a regulated activity under KCLDC.

Construction Access.

KRRC will use multiple existing roads and bridges for construction access and hauling and transportation of material. Most of the activity will be conducted on private roads, Bureau of Land Management roads, and roads that are not maintained by the County.

Road Maintenance.

The Project contemplates routine road maintenance, including pavement rehabilitation and regrading of uneven or rutted areas, on: the existing access road from OR 66 to JC Boyle Dam, JC Boyle Powerhouse Road, Topsy Grade Road, Power Canal Access Road, and Disposal Access Road. The access road from OR 66 to JC Boyle Dam and the Disposal Access Road are private roads. The County owns Topsy Grade Road. The Bureau of Land Management owns the majority of JC Boyle Powerhouse Road and Power Canal Access Road, and PacifiCorp owns a short length of each. All county-owned infrastructure will be left in the same or better condition upon Project completion, understanding that the Project will not be responsible for repairing wear or damage caused by other uses.

KCLDC 50.040.A. permits outright in all County zones "[n]ormal ... maintenance, repair, and preservation activities of existing transportation facilities." KRRC plans for the above road pavement rehabilitation, regrading of uneven or rutted areas, and other routine maintenance, all of which KCLDC 50.040.A would permit outright. Therefore, the Project's road maintenance needs comply with the KCLDC.

Road Improvement.

The Project contemplates widening the access road from OR 66 to JC Boyle Dam and the Disposal Access Road, both of which are private roads. KCLDC 50.040.B conditionally permits road widening and construction as an "Extensive Impact Service and Utility" use in every County zone. Therefore, the Project's road widening needs comply with the KCLDC.

Conditional Use Criteria.

Road widening in the Forestry (F) zone must comply with the conditional use review criteria that KCLDC 44.030 sets forth. KRRC must demonstrate that the road widening: (1) complies with the policies of the KCCP¹; is in conformance with all other required standards and criteria of the KCLDC²; and (3) is not of a location, size, or design, and does not have operating characteristics, that will have a significant adverse impact on the livability, value, or appropriate development of abutting properties and the surrounding area, including adverse impacts to the transportation system in accordance with KCLDC 71.200.³ Upon a demonstration of compliance with those criteria, the conditional use permit will be granted consistent with the plan and implementing ordinances. If the County determined that any or all of the Project's road widening needs did not satisfy the above criteria, absent modification or conditional implementation, KCLDC 44.030.D would allow the County to impose conditions of approval to "ensure compliance" with the KCCP and/or KCLDC.

For the above reasons, the Project's road maintenance and improvement needs are allowed outright and subject to conditional use criteria, respectively, and therefore are compatible with the KCLDC.

Dam Alteration and Temporary Staging Areas.

The Forestry (F) zoning designation applies to the Dam structure/powerhouse and all associated staging areas.

The Forestry (F) zone permits outright "[p]hysical alterations to the land auxiliary to forest practices," including but not limited to landfills, dams, and reservoirs. KCLDC 55.015.C.⁴ Specifically, "alterations" to dams and reservoirs, which is most reasonably read to include deconstruction, is allowed as of right under this zoning designation. Therefore, a proper interpretation of KCLDC 55.015.C. authorizes dam removal outright, together with necessary construction staging areas required for this purpose. Further, the Forestry (F) zone permits outright "[u]ses to ... provide for wildlife and fisheries resources," which also could serve as

¹ The KCCP contains many policies. Most such policies are aspirational and/or are implemented by the KCLDC. Therefore, most of the KCCP's policies are not independent obligations with which development must comply. To the extent a KCCP policy creates an affirmative (non-aspirational) obligation independent of the KCLDC with which a conditionally permitted development must comply, the Project must either comply with said policy or amend the KCCP in accordance with the procedures set forth in KCLDC Article 49. Under either approach, compatibility of such development with County land use regulations is assured.

² This analysis addresses all applicable standards and criteria of the KCLDC.

³ KCLDC 71.200 requires, under certain circumstances, that an applicant for a development permit submit a "Traffic Impact Study" to study the effect of the proposed development on transportation infrastructure.

⁴ Pursuant to KCLDC 55.025.T, the establishment of new reservoirs and water impoundments requires conditional use authorization

an independent basis for code compliance for the Project.

Disposal Sites.

KRRC will develop two disposal sites for the Project by clearing vegetation and stripping and stockpiling topsoil. KRRC will bury earth materials generated from removal of the Dam on-site in a portion of the original borrow pit (“Borrow Pit Site”) on the Dam’s right abutment. KRRC will grade the Borrow Pit Site as a hill (max height 35 feet). KRRC will place within a 100-foot-deep scour hole (“Scour Hole Site”) concrete rubble from the Dam and its flume, forebay, and powerhouse. KRRC will backfill the Scour Hole Site, and revegetate the area as provided in the Definite Plan. KRRC will dispose of all material unsuitable for disposal at the Borrow Pit Site and the Scour Hole Site at an approved landfill.

As noted, both disposal sites are located in the Forestry (F) zone. Under this designation, physical alterations auxiliary to forest practices associated with dams and landfills are permitted outright. KCLDC 56.015(C). The most reasonable interpretation of these provisions is that disposal sites associated with dam removal or “alteration” is allowed outright as an accessory activity.

The disposal sites will contain inert concrete and construction debris and will be used only for the dam removal project. Therefore, the disposal sites are exempt from state and local regulation.

Property Development Standards.

Development in the Forestry (F) zone is also subject to limited property development standards, including:

- **Minimum Lot Size.** The minimum lot size for development in the Forestry (F) zone is 80 acres. KRRC will undertake all Project’s activities on lots larger than 80 acres.
- **Residential Density.** The Project does not constitute residential development.
- **Lot Size and Shape.** These standards apply only to lots within subdivisions or partitions and are therefore not applicable to the Project.
- **Building Heights and Setbacks.** The proposed Project will not include buildings or structures. Therefore, these standards do not apply.
- **Fences, Walls, and Screening.** These standards do not apply to the proposed Project.
- **Landscaping.** These standards apply only to limited uses and activities and do not apply to the proposed Project. KCLDC 65.020.
- **Signs.** Signs that “cannot be viewed” from public streets are exempt from sign regulation, KCLDC 66.020.E, which would include any signage at the Project as proposed.

- **Parking.** There are no established parking standards for activities associated with the Project. Therefore, the County Planning Director may establish parking requirements, if any, for the Project activities. KCLDC 68.020.E.
- **Access.** Existing public and private roads provide access to the Project site. KRRC will improve and perform maintenance on these roads but it will not create new lots or parcels requiring access, nor eliminate existing access points. Access to or from a state highway is subject to Oregon Department of Transportation review. KCLDC 71.020.C.

Vegetation/Tree Removal.

The Project contemplates the removal of trees to facilitate road widening and the removal of vegetation to prepare disposal sites and construction staging areas. Such activities are not subject to regulation under the KCLDC.

Facilities Removal.

The Project contemplates demolition of certain private transportation facilities. The Project also contemplates removal of recreational facilities in and around the Dam's reservoir. These activities are not subject to regulation under the KCLDC.

Removal of Transportation Facilities.

The Project contemplates demolition of the Timber Bridge, the Right Abutment Access Road, the Penstock Access Roads, the Disposal Access Road, the Pioneer Park Access Road, and the Topsy Campground Roads. Demolition and/or removal of transportation facilities is not subject to regulation under the KCLDC except in conjunction with new land construction.

Removal of Recreational Facilities.

The KRRC's Recreation Plan includes preservation of some existing recreation facilities, upgrading some existing recreation facilities, and the addition of some new recreation facilities. The Project contemplates the removal of recreational facilities in the Dam's reservoir, including facilities at Pioneer Park and Topsy Campground. KRRC will remove at Pioneer Park picnic tables, grills, portable toilets, a trash receptacle, a dumpster, and informational signs. KRRC will remove at Topsy Campground a boat launch, floating dock, and fishing pier.

Oregon Statewide Planning Goal 8 concerns recreation needs. In accordance with Goal 8, the KCCP establishes various aspirational policies that promote recreation needs within the County. However, the acknowledged status of the plan and implementing ordinances precludes any Goal compliance obligations, and such aspirational plan policies do not serve as standards and/or criteria with which the Project must comply for purposes of discretionary land use approvals. Rather, the KCLDC is the County's instrument for implementing the acknowledged in lieu of Goal compliance, and the KCCP. KCLDC 10.020. No provision of the KCLDC prohibits or otherwise regulates KRRC from removing the facilities as discussed above.

Attachment F

Memorandum of Understanding between California Department of Fish and Wildlife and the
Klamath River Renewal Corporation

September 18, 2020

MEMORANDUM OF UNDERSTANDING BETWEEN CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE AND THE KLAMATH RIVER RENEWAL CORPORATION

This Memorandum of Understanding (“**MOU**”) is made by and between the CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (“**CDFW**”) and KLAMATH RIVER RENEWAL CORPORATION (“**KRRC**”) as of this 18 day of September, 2020 (“**Effective Date**”). CDFW and KRRC are each individually referred to in this MOU as a “**Party**” and are collectively referred to in this MOU as the “**Parties**.” This MOU is made in reference to the following facts.

RECITALS

WHEREAS, the amended Klamath Hydroelectric Settlement Agreement (“**KHSA**”) provides for the removal of four hydroelectric developments comprised of the J.C. Boyle, the Copco No. 1, the Copco No. 2, and the Iron Gate hydroelectric developments, FERC Project No. 14803 (collectively the “**Lower Klamath Project**”).

WHEREAS, the KHSA also provides for the implementation of measures associated with dam removal to improve water quality, restore aquatic habitat and reestablish access to over 400 stream-miles of historic spawning habitat upstream of the Lower Klamath Project.

WHEREAS, KRRC and CDFW are parties to the KHSA.

WHEREAS, Section 2.1 of the KHSA states that the Parties shall fully support the implementation of the KHSA, including the support of applications for and the granting of regulatory approvals consistent with the KHSA, subject to compliance with any and all constitutional, statutory, and regulatory responsibilities as may be applicable thereto.

WHEREAS, the KHSA provides for the implementation of dam removal and basin restoration activities through the mechanisms administered by the Federal Energy Regulatory Commission (“**FERC**”) under the authority of the Federal Power Act, 16 USC §791 *et seq.* (the “**FPA**”).

WHEREAS, on September 23, 2016, PacifiCorp, licensee for the Klamath Hydroelectric Project No. 2082, and KRRC, filed an application with FERC to amend and partially transfer the Klamath Project’s FERC license from PacifiCorp to KRRC. This application was approved by FERC on July 16, 2020, 172 FERC ¶ 61,062 (July 16, 2020) (the “**License Transfer**”). Upon KRRC’s acceptance of this license, KRRC will become the co-licensee of the Lower Klamath Project.

WHEREAS, on September 23, 2016, in furtherance of its obligations under the KHSA, KRRC filed an application with FERC to surrender the license for the Lower Klamath Project. This application is now pending before FERC as the *Application for Surrender of License for Major Project and Removal of Project Works*; FERC Project Nos. 2082-063 and 14803-001, (“**License Surrender**”).

WHEREAS, in support of the License Transfer application, on June 28, 2018, the Renewal Corporation filed with FERC its comprehensive plan for the physical removal of the Lower Klamath Project to achieve at a minimum a free-flowing condition and volitional fish passage, site remediation and restoration, including previously inundated lands, measures to avoid or minimize adverse downstream impacts, and all associated permitting for such actions (the

“Project”). The comprehensive plan for the Project, as amended, is referred to herein as the **“Definite Plan.”**

WHEREAS, per Proposition 1 Funding for Water Quality, Supply, Treatment, and Storage Projects of 2014, Agreement Number P11601-0, funding in the amount of \$249,500,000 has been encumbered to fund Project implementation. KRRC has access to up to \$450 million in total funding for Project implementation, sourced from surcharges on PacifiCorp customers in Oregon and California as well as grant funds.

WHEREAS, CDFW has regulatory interests and responsibilities that are implicated by the Definite Plan, and these interests and responsibilities include matters that fall under the purview of Fish and Game Code sections 1600, *et seq.* and 2080, *et seq.*, (the **“CDFW Regulatory Interests”**).

WHEREAS, in a desire to work cooperatively with respect to the License Surrender and in the implementation of the Definite Plan and the Final Order, CDFW and KRRC have developed recommendations to FERC regarding the CDFW Regulatory Interests (**“Recommended Terms and Conditions”**). The KRRC intends to submit to FERC for approval the various measures that are recommended in the management plans and are incorporated herein by this reference. The KRRC will finalize the following plans for purpose of submittal to FERC: Aquatic Resources Management Plan, Construction Management Plan, Erosion and Sediment Control Plan, Hatcheries Management and Operations Plan, Health and Safety Plan, Historic Properties Management Plan, Interim Hydro Operations Plan, Recreation Facilities Plan, Remaining Facilities Plan, Reservoir Area Management Plan, Reservoir Drawdown and Diversion Plan, Sediment Deposit Remediation Plan, Water Quality Monitoring and Management Plan, Water Supply Management Plan, Waste Disposal and Hazardous Materials Management Plan, and Wildlife and Terrestrial Management Plan.

WHEREAS, the Parties now desire to submit the Recommended Terms and Conditions to FERC as joint recommendations pertaining to the CDFW Regulatory Interests to be incorporated into management plans to be approved by FERC as conditions of License Surrender.

NOW THEREFORE, in consideration of the foregoing the Parties agree as follows:

- 1. Recommended Terms and Conditions:** The Parties hereby jointly recommend and request that FERC require (a) the Recommended Terms and Conditions be incorporated into management plans to be approved by FERC, and (b) compliance with such approved management plans as an enforceable obligation and requirement of the Final Order in the License Surrender proceeding. The term **“Final Order”** shall mean an order issued by FERC that constitutes the full and final disposition of the License Surrender proceeding and is subject to judicial review pursuant to 16 U.S.C. § 825l (b).
- 2. Implementation of Recommended Terms and Conditions:** Subject to the terms and conditions of the Final Order and as Licensee of the Lower Klamath Project, KRRC shall implement the Recommended Terms and Conditions as enforceable obligations of management plans to be approved by FERC.
- 3. CDFW Permits or Approvals:** The Recommended Terms and Conditions and implementation thereof in accordance with Section 2 above are expected to be sufficient to

authorize incidental take, or take and possession where applicable, of the covered species specified in the Recommended Terms and Conditions; and to protect fish and wildlife resources; all under terms equivalent to those that would be required under the CDFW Regulatory Interests.

4. Term: The term of this MOU shall commence as of the Effective Date and shall end upon the date that is the earlier of the following dates to occur: (a) the date that FERC shall determine that all of the requirements contained in the Final Order have been satisfied, or (b) the date that a Party shall terminate this MOU in accordance with Section 8 ("Termination").

5. FERC Approval: KRRC's obligation to implement the Recommended Terms and Conditions is contingent upon (a) FERC's issuance of a Final Order that substantially conforms with the Definite Plan and (b) FERC's approval of management plans that incorporate the Recommended Terms and Conditions.

6. Good Faith: The Parties agree to collaboratively and in good faith recommend and support the Recommended Terms and Conditions in the License Surrender proceeding and shall take no action before FERC, or in any other regulatory or public forum, that is contrary to, conflicts with, hinders, changes, modifies or impairs the implementation of this MOU.

7. Reservation of Rights: Subject to Section 6 ("Good Faith") and applicable law, CDFW fully reserves its right to take such action as it deems necessary to fulfill its constitutional, statutory, and regulatory responsibilities or comply with any judicial decision. KRRC fully reserves its right to raise or otherwise assert any position related to preemption under the Federal Power Act, 16 USC §791 et seq. and the Supremacy Clause of the U.S. Constitution.

8. Termination: KRRC may terminate this MOU by written notice to the CDFW if KRRC elects to reject and does not accept (a) the License Transfer, or (b) the License Surrender.

9. Miscellaneous: This MOU contains the entire agreement between the Parties with respect to the subject matter hereof and supersedes any and all other prior understandings, communications and agreements, oral or written, between the Parties with respect to the subject matter of this MOU. This MOU may not be amended or modified except by a written agreement signed by the Parties. This MOU may be executed in multiple counterparts, each of which shall be deemed to be an original agreement, and all of which shall constitute one agreement. This MOU shall be governed by the laws of the United States of America and, as applicable, the laws of the state of California.

THIS MEMORANDUM OF UNDERSTANDING is made by and between the undersigned Parties as of the Effective Date.

**CALIFORNIA DEPARTMENT OF FISH
AND WILDLIFE**

**KLAMATH RIVER RENEWAL
CORPORATION.**

DocuSigned by:

Tina Bartlett
1D82ADE7303A474...

Mark Bransom

By: Tina Bartlett
Its: Regional Manager-Northern Region

By: Mark Bransom
Its: Chief Executive Officer